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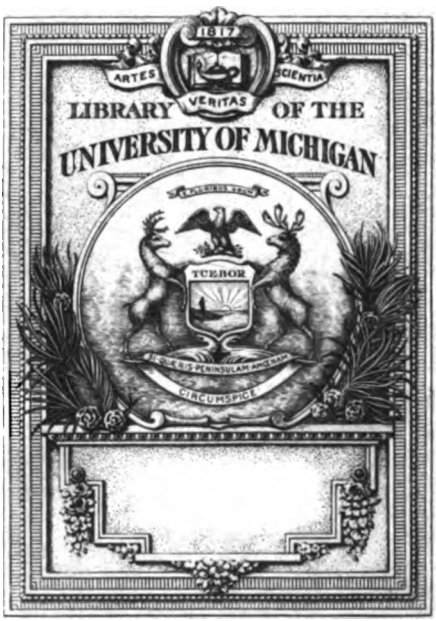

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, October 7, 1913.

SIR: A half dozen States are still without laws requiring parents and guardians to give their children and wards an opportunity to profit by the provisions made by these States for their education, and thousands of children are growing up without that education and training necessary for life, for making a living, for membership in society, and for the duties and responsibilities of citizenship. The individual, society, and State suffer as the result, despite the fact that the citizens and the property of the State are taxed for the support of schools. A general knowledge of the fact that more than four-fifths of the States and Nations accounted civilized and progressive have attendance laws on their statute books, and an understanding of the principle of such legislation and that it is necessary for democratic freedom, will hasten the needed legislation on this subject in these States. In other States attendance laws are less effective than they should be, and education officers and legislators want information as to the most effective laws of other States. Everywhere school officers and students of education want information that will enable them to make comparative studies of the relative value of various forms of attendance laws and of their administration.

For these reasons I recommend that the accompanying manuscript, prepared by W. H. Hand, professor of secondary education in the University of South Carolina, and members of this bureau, be published as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

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COMPULSORY SCHOOL ATTENDANCE.

I. COMPULSORY ATTENDANCE LAWS IN THE UNITED STATES.

By W. S. DEFFENBAUGH,
Specialist in School Administration, Bureau of Education.

The formulation of effective compulsory attendance laws has been one of the problems confronting legislators and school officials for the past 70 years. The most marked advance in enacting such laws has been made since 1890. Prior to that date only 27 States and the District of Columbia had compulsory laws, and many of these were inoperative. Now 43 States have them. How effectively the laws of the several States are enforced it is not possible to determine, as statistics of enforcement are lacking in most of the States and in many of the city reports, but that many essential factors are wanting in some of the laws will be evident when a careful study is made of the tabular digest presented in this bulletin.

In the following pages the writer has attempted to call to the attention of the reader a few of the arguments for such laws and some of the factors necessary in their enforcement. The reports of city and State superintendents and articles prepared by practical school men are quoted freely.

To introduce the subject, and to help the reader recall the early history of compulsory education in this country, a brief historical sketch of the early Massachusetts laws is presented.

In 1642 the General Court of the Massachusetts colony issued the following order:[1]

> This court, taking into consideration the great neglect of many parents and masters in training up their children in learning and labor, and other employments which may be profitable to the Commonwealth, do hereupon order and decree that in every town the chosen men appointed for managing the prudential affairs of the same shall henceforth stand charged with the care of the redress of this evil, so as they shall be sufficiently punished by fines for the neglect thereof, upon presentment of the grand jury, or other information or complaint in any court within this jurisdiction; and for this end they, or the greater number of them, shall have power to take account from time to time of all parents and masters, and of their children, concerning their calling

[1] Records Mass. Colony, Vol. II, p. 6.

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and employment of their children, especially of their ability to read and understand the principles of religion and the capital laws of their country, and to impose fines upon such as shall refuse to render such accounts to them when they shall be required.

This law did not prescribe where the children should be taught. All it demanded was that they be given instruction in certain subjects; but five years later, in 1647, this was remedied by the following order:[1]

It being one chiefe project of that old deluder, Satan, to keep men from the knowledge of the scriptures, as in former times, keeping them in an unknowne tongue, so in these latter times, by perswading them from the use of tongues, so that at least, the true sence and meaning of the originall might bee clouded with glosses of saint seeming deceivers; and that learning may not bee buried in the grave of our forefathers in church and commonwealth, the Lord assisting our indeavors; *It is therefore ordered by this courte and authority thereof*, That every townshipp within this jurisdiction, after that the Lord hath increased them to the number of fifty howsholders, shall then forthwith appointe one within theire towne to teach all such children as shall resorte to him, to write and read; whose wages shall be paid either by the parents or masters of such children, or by the inhabitants in generall, by way of supplye, as the major parte of those who order the prudentials of the towne shall appointe; provided, that those who send theire children, bee not oppressed by paying much more than they can have them taught for in other townes. *And it is further ordered*, that where any towne shall increase to the number of one hundred families or howsholders, they shall sett up a grammar schoole, the masters thereof being able to instruct youths so far as they may bee fitted for the university; and if any town neglect the performance hereof above one yeare, then every such towne shall pay five pounds per annum to the next such schoole, till they shall perform this order.

These two laws embodied the principles upon which modern compulsory education rests in declaring that all children should be educated, that the parent or the community must provide suitable education, and that the State may compel the establishment and maintenance of schools and determine what these schools shall teach.

When the development of the factory system began in Massachusetts in the early part of the nineteenth century and the population began to concentrate in villages and cities, it was found that children could do much of the work in the factories and they were taken away from school for that purpose. It then became evident that further legislation was needed, and a "factory law" was enacted in 1842; but this was practically a dead letter, at least in its relation to school attendance. So great had the evils of nonattendance and truancy become that Horace Mann gave especial attention to it in his reports, and by 1850 public sentiment had become sufficiently aroused to pass a truancy law. A compulsory attendance act followed in 1852, and that was amended in 1859 to read as follows:

SECTION 1. Every person having under his control a child between the ages of 8 and 14 years shall annually during the continuance of his control send such child to

[1] Records Mass. Colony, Vol. II, p. 203.

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some public school in the city or town in which he resides at least 12 weeks, if the public schools of such city or town so long continue, 6 weeks of which time shall be consecutive, and for every neglect of such duty the party offending shall forfeit to the use of such city or town a sum not exceeding $20; but if it appears upon the inquiry of the truant officers or school committee of any city or town, or upon the trial of any prosecution, that the party so neglecting was not able, by reason of poverty to send such child to school, or to furnish him with the means of education, or that such child has been otherwise furnished with the means of education for a like period of time, or has already acquired the branches of learning taught in the public schools, or that his bodily or mental condition has been such as to prevent his attendance at school or application to study for the period required, the penalty before mentioned shall not be incurred.

SEC. 2. The truant officers and the school committees of the several cities and towns shall inquire into all cases of neglect of the duty prescribed in the preceding section and ascertain from the persons neglecting the reasons, if any, therefor; and shall forthwith give notice of all violations, with the reasons, to the treasurer of the city or town, and if such treasurer willfully neglects or refuses to prosecute any person liable to the penalty provided for in the preceding section he shall forfeit the sum of $20.[1]

The failure of these early laws to secure attendance was apparent, and Supt. White took up the subject in 1870, saying:[2]

I am fully convinced, after many years of observation and inquiry, that the several enactments relating to this matter (absenteeism) are ill-adapted to their purpose, discordant, and incapable of execution, and therefore need a careful and thorough revision, to which ample time and thought should be given. I therefore respectfully recommend that the present legislature be requested to pass a resolve directing the board of education or such other competent body as may be deemed proper to take into consideration all existing laws relating to school attendance, truancy, absenteeism, and the employment of children in manufacturing establishments, and inquire what alterations and amendments are needed to combine said enactments into a uniform, consistent, and efficient code adapted to the present views and wants of the public.

By 1890 the law had been so amended that it was well enforced, according to Supt. J. W. Dickinson, who at that time reported to the United States Bureau of Education that "the compulsory law operates well and is generally obeyed."[3] The obedience which seemed to satisfy Mr. Dickinson would probably fail to meet the approval of the officers of the present day; but constant improvement has been made since then both in the laws and in the machinery for their enforcement.

The Massachusetts compulsory education laws have been the model for imitation in other States of the Union, and all of them now have such laws except Alabama, Florida, Georgia, Mississippi, South Carolina,[4] and Texas. The laws of Maryland, Louisiana, Virginia, and Arkansas, however, do not apply to the entire State.

[1] U. S. Commis. of Ed., Rep., 1888–89, p. 472. [2] Ibid., pp. 473–74. [3] Ibid., p. 486.

[4] A compulsory law applying to the cities of Charleston and Columbia was enacted in South Carolina in 1870, but it was never enforced and was repealed soon afterwards.

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The following table gives the date of the enactment of the first compulsory attendance law in each State:

Date of enactment of compulsory attendance laws.

Massachusetts	1852	Wyoming	1876	Kentucky	1896
District of Columbia	1864	Ohio	1877	West Virginia	1897
Vermont	1867	Wisconsin	1879	Indiana	1897
New Hampshire	1871	Rhode Island	1883	Arizona	1899
Michigan	1871	Illinois	1883	Iowa	1902
Washington	1871	Dakota	1883	Maryland	1902
Connecticut	1872	Montana	1883	Missouri	1905
New Mexico	1872	Minnesota	1885	Tennessee	1905
Nevada	1873	Nebraska	1887	Delaware	1907
New York	1874	Idaho	1887	North Carolina	1907
Kansas	1874	Colorado	1889	Oklahoma	1907
California	1874	Oregon	1889	Virginia	1908
Maine	1875	Utah	1890	Arkansas	1909
New Jersey	1875	Pennsylvania	1895	Louisiana	1910

OPPOSITION TO COMPULSORY EDUCATION LAWS.

Though nearly all the States in the Union have enacted compulsory attendance laws, each State has had to overcome much opposition on the part of those who argued that such laws are un-American in principle, in that they interfere with the personal liberty of the parent. In 1891 and 1893 Gov. Pattison, of Pennsylvania, vetoed compulsory education bills on that ground. In 1895, when Gov. Hastings signed a similar bill, he did so only because he did not wish to obtrude his judgment in the matter, which was against the bill.

The plea that such laws interfere with personal liberty has, however, never been recognized by the courts, and all such laws now on the statutes of the several States are considered constitutional.

Among the arguments offered by those opposed to the enactment of compulsory attendance laws are these: (1) A new crime is created; (2) it interferes with the liberty of parents; (3) new powers are arrogated by the Government; (4) it is un-American and not adapted to our free institutions; (5) compulsory education is monarchical in its origin and history; (6) attendance is just as great without the law.

These points of opposition were met in 1872 by B. G. Northrop, secretary of the Connecticut State Board of Education, as follows:[1]

Such a law would create a new crime. I reply, it ought to. To bring up children in ignorance *is* a crime and should be treated as such. As the most prolific source of criminality it should be under the ban of legal condemnation and the restraint of legal punishment. All modern civilization and legislation has made new crimes. Barbarism recognizes but few. To employ children in factories who are under 10 years of age or who have not attended school, or to employ minors under 18 years of age more than 12 hours a day, is each a new crime.

It interferes with the liberty of parents. I reply again, it ought to, when they are incapacitated by vice or other causes for the performance of essential duties as parents.

[1] An. Rep. Conn. Bd. of Ed., 1872, p. 32.

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Many other laws limit personal liberty. The requisition to serve on juries, or to aid the sheriff in arresting criminals, or the exactions of military service in the hour of the country's need—these and many other laws do this. If the law may prohibit the owner from practicing cruelty upon his horse or ox, it may restrain the parent from dwarfing the mind and debasing the character of his child. If the State may imprison and punish juvenile criminals, it may remove the causes of their crime and its consequences of loss, injury, and shame. The child has rights which not even a parent may violate. He may not rob his child of the sacred right of a good education. The law would justly punish a parent for starving his child, and more mischief is done by starving the mind than by famishing the body. The right of a parent to his children is founded on his ability and disposition to supply their wants of body and mind. When a parent is disqualified by intemperance, cruelty, or insanity, society justly assumes the control of the children. In ancient Greece the law gave almost unlimited authority to the father over his offspring. The same is true in some semibarbarous nations now. In all Christian lands the rights of the parents are held to imply certain correlative duties, and the duty to educate is as positive as to feed and clothe. Neglected children, when not orphans in fact, are virtually such, their parents ignoring their duties, and thus forfeiting their rights as parents. The State should protect the helpless, and especially these, its defenseless wards, who otherwise will be vicious as well as weak.

It arrogates new power by the Government. So do all quarantine and hygienic regulations and laws for the abatement of nuisances. Now, ignorance is as noxious as the most offensive nuisance, and more destructive than bodily contagions. Self-protection is a fundamental law of society.

It is un-American and unadapted to our free institutions. To put the question in the most offensive form, it may be asked, "Would you have policemen drag your children to school?" I answer, "Yes, if it will prevent his dragging them to jail a few years hence." But this law in our land would invoke no "dragging" and no police espionage or inquisitorial searches. With the annual enumeration and the school registers in hand, and the aid of the teachers and others most conversant with each district, school officers could easily learn who are the absentees. * * *

Compulsory education is monarchical in its origin and history. Common as is this impression it is erroneous. Connecticut may justly claim to be one of the first States in the world to establish the principle of compulsory education. On this point our earliest laws were most rigid. They need but slight modification to adapt them to the changed circumstances of the present. Before the peace of Westphalia, before Prussia existed as a kindgom, and while Frederick William was only "elector of Brandenburg," Connecticut adopted coercive education. * * *

Attendance would be just as large without the law as it is now. It may be so. But so far from being an objection, this fact is strong proof of the efficiency of that law which has itself helped create so healthful a public sentiment. Were the law to be abrogated to-morrow the individual and general interest in public education would remain. The same might have been said of Connecticut for more than 170 years after the adoption of compulsory education. During all that period a native of this State of mature age unable to read the English language would have been looked upon as a prodigy. Still, in Connecticut as well as in Germany, it was the law itself which greatly aided in awakening public interest and in fixing the habits, associations, and traditions of the people.

To the argument that modern compulsory education laws are monarchical in their origin and history, J. W. Perrin replies:[1]

Common as the idea is that obligatory laws originated in Prussia, it is wholly erroneous. Nearly two centuries had elapsed from Luther's famous address in 1524,

[1] Compulsory Education in New England, p. 20.

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before Frederick William I issued those mandatory orders that developed into compulsory attendance laws. These orders were issued October 24, 1713, and nearly four years later, September 28, 1717, the King issued the first law. Then such laws had been tried by the State of Geneva, the Estates of Navarre, and the Duchy of Wurttemberg. Such a law had been in successful operation in Massachusetts for 75 years and in Connecticut for nearly the same time.

ENROLLMENT.

Notwithstanding the fact that most States have enacted compulsory attendance laws, many of them fail to enroll all the children coming within the provision of the law and to secure regular attendance on the part of those enrolled. This, however, does not mean that compulsory attendance is a failure, as those States that have such laws enroll a greater percentage of children and have a higher average of attendance than those States that have no such laws. Cities that have recently made trial for the first time of compelling attendance report excellent results.

During the first year of the enforcement of the compulsory law in New Orleans 1,361 cases were investigated with most satisfactory results. A very large number of children were placed in school and nearly 400 pupils became more regular in attendance.

The superintendent of schools of Raleigh, N. C., wrote to this office in February, 1913:

For the first time the schools of Raleigh have compulsory attendance. As a result 729 more children are in school this year than last, and half of them are colored. The sentiment of the community is overwhelmingly in favor of the law.

SCHOOL CENSUS.

To secure the enrollment of pupils several factors are necessary, the most important of which is a complete census of all children of compulsory school age. Some otherwise well-written laws neglect this very important factor in execution, the school census being taken merely to secure State appropriations based upon the number of children in the district. That an annual census is necessary to secure enrollment is obvious. Every year children move from one district to another, and others have reached the compulsory age of 7, 8, or 9 years as the law may be; many immigrant children may have arrived who would not be discovered by the truant officer without a census list. If a school census has been taken, the teachers of the public, private, and parochial schools can promptly check off those not enrolled during the first few weeks of the school term. The truant officers can then easily locate them and secure their attendance.

As early as 1873, Supt. John D. Philbrick, of Boston, called attention to the need of a school census, thus:[1]

[1] Rep. of Commis. of Ed., 1888-89, vol. 1, p. 474.

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In a large city it is extremely difficult to execute the law respecting the attendance of children between 8 and 14 years of age without the aid of some new instrumentality. The truant officers have no means of knowing the whereabouts of those nonattendants who are not found wandering about the streets and public squares. What is needed is a register of the names, ages, and residences of all children of the prescribed school age. Such register is found necessary wherever compulsory education is fully carried out.

James D. Sullivan, chief attendance officer of the State of New York, says: [1]

Our annual school census at present forms the basis of the inforcement of child labor and attendance laws, and serves this end only; yet the purpose sought is so important and far-reaching as to make the taking of the census one of the most important duties devolving upon the school authorities, because a thorough enforcement of these laws is necessarily dependent upon accurate and reliable census information.

In 1909 a permanent census bureau created in cities of the first class in New York revealed 518 children in the city of Rochester unlawfully out of school; 6,318 in Buffalo; and 23,241 in New York City. Though the machinery of the compulsory attendance and child-labor laws had been in operation over 16 years and with much success, yet over 30,000 children were unlawfully out of school.[2]

As further evidence of the value of a school census, the following extract is taken from the report of the commissioner of education of Massachusetts:

In more populous centers school attendance officers are greatly handicapped by the absence of reliable information regarding the children on whom school attendance is obligatory. An annual census is required in the towns and cities of Massachusetts, but this census is not taken in such a way as to furnish information which attendance officers can use. Students of school administration are agreed that in more populous areas some form of permanent registration of all children who come under the school attendance law (and it is to be remembered that in some cases this extends to the age of 18 in Massachusetts) should be provided. In connection with the taking of the annual school census, it would be possible to provide a card record which could, after comparison with the registration of the school, become the basis on which attendance officers could investigate illegal absence.[3]

Similar testimony is presented by the commissioner of education of New York, who states:

The organization of permanent census boards in cities of the first class under the provisions of the education law has become an efficient agency in the proper enforcement of the compulsory attendance law. The work of these boards in the cities of the first class has demonstrated that compulsory attendance laws can not be satisfactorily enforced without a complete up-to-date census available to the school authorities at all times. The law gives all cities not of the first class the discretion to organize census boards on the same conditions on which such boards are operated in the first-class cities. Thus far no city has voluntarily adopted the plan of a census board and carried out the work as it is done in the cities of the first class. However, some

[1] Rep. of Commis. of Ed., New York, 1912, p. 324.
[2] Ibid., p. 325.
[3] 74th An. Rep. of Mass. Bd. of Ed., 1909–10, p. 85.

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of the other cities have done very much along this line. The law requires all cities which do not establish census boards to take a census of the children in such cities once every four years. The last census taken in these cities was in 1909, and another will not be taken until 1913. A census of the children of a city taken three years ago is of no material service to school authorities in the enforcement of the compulsory attendance law at the present time.[1]

Even with a yearly census many children of prescribed school age may be unlawfully out of school for an entire school year. If children move into a district after the census has been taken, the attendance officer may not discover them.

Who shall take the school census is a problem that needs careful consideration in framing compulsory education laws. If the enumeration is not made by the school board or its agent, it is a question of how complete a census will be taken. In Pennsylvania until 1911 it was the duty of the assessors to register the school children. In 1910 John W. Anthony, who made a study of the school census in Pennsylvania, said:[2]

The farcical character of this census in most Pennsylvania districts has long been recognized. Sixty-two cities condemn the method and ten find it satisfactory. In twenty cities the enrollment exceeds the number on the census list.

Leonard P. Ayres, commenting on the school census, says:

In 1900 the authorities of the United States Census made a study of the school censuses taken during that year and compared the results with the actual enumeration of children made by the Federal agents during the same year. In 26 States and Territories the number of children reported in the school censuses was less than the number found by the Federal agents. The local authorities failed to report more than a third of a million children of school age, the error in some cases being as high as 25 per cent. In 17 States the local agents reported a quarter of a million children more than there actually were, the error of over statement running as high as 15 per cent.[3]

THE IMMIGRANT.

Immigrant children in the large cities are difficult to locate. Miss Julia Richman says:[4]

Notwithstanding all our compulsory education laws and all our child-labor laws, notwithstanding the fact that the welfare of the Nation depends upon the control of illiteracy, no attempt has ever been made by school authorities, whether municipal, State, or Federal, to secure a census of immigrants of legal school age. Were such records carefully made at ports of entry and duplicates thereof immediately sent to the proper school authorities, not one child under the age limit of the laws of the State could escape attendance at school. Thousands of such aliens have arrived, and are still continuing to arrive, drifting into delinquency and crime, with little or no interference on the part of the school. Somewhere and somehow at every port of entry there must be established a bureau in which most careful entries should be made—entries that will show a list of immigrants of school age, tabulated according to destination. Carefully classified duplicate lists must be immediately forwarded

[1] Rep. of Commis. of Ed., New York, 1912, p. 62.
[2] Compulsory Education in Pennsylvania, p. 4.
[3] Laggards in Our Schools, Ayres, p. 191.
[4] Proc. of the Nat. Ed. Asso., 1905, p. 113.

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to the municipal school authorities in the respective towns or cities to which the aliens are bound. With these lists in hand, the school authorities could enroll immediately all who belong under their control.

CHILDREN WITH EMPLOYMENT CERTIFICATES.

Another class of pupils often lost to the schools are those who have received employment certificates but have failed to find work, or who, after working a few weeks, have quit and not returned to school. Supt. W. H. Maxwell, of New York City, says:[1]

> Principals and teachers who have paid some attention to the causes of truancy inform me that one of the most patent is the issuance of employment certificates to boys and girls who have not secured employment. The law requires that they shall be in school unless legally employed; but most young people who obtain the certificates, their parents, and, I am sorry to say, some principals and teachers look upon these official documents as licenses to remain away from school and to roam the streets until employment is obtained. If perchance one of these delinquents is arrested by an attendance officer, his excuse is that he is looking for work. This excuse is generally accepted by the courts as a sufficient defense against the charge of truancy. There is no question that the placing of employment certificates in the hands of children who have no trade and who are not employed is a partial cause of truancy.

This weakness in most compulsory laws can be remedied only by having the employment certificate made directly to the employer after the child has found employment and by having the employer return this certificate to the school authorities when the child leaves his employ. This plan effectually prevents children with employment certificates from wandering the streets before they have secured employment or after they have quit a position. This is much more effective than having the employer report every three months the names of all children in his employ, as by that plan a child may be unlawfully out of school several months before the school authorities learn of the fact, while if the certificate is returned at once the child can be easily located.

TRANSFERRING TO AND FROM PRIVATE SCHOOLS.

Other children are lost when transferring to and from private schools if there is not the closest cooperation between the public school and the private school. A pupil may receive a transfer to attend a private school. This child may be lost to the school unless inquiries are made of the private school whether such child is enrolled. A child may leave a private school and not enroll in a public school unless the public school has been notified of the child's withdrawal from the private school. This defect can not be remedied until precisely the same reports to attendance officers as to absentees are required of private schools as of public schools. A few States require

[1] An. Rep. New York City, 1912, p. 241.

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the register of private schools to be kept open for inspection by public-school officials, but this is not sufficient to enforce the attendance laws properly.

POVERTY.

One of the most difficult problems to solve in enforcing the compulsory attendance laws is that of compelling children from poverty-stricken homes to attend school. Some States provide that such children may be excused. The question may be raised, If it is necessary for the perpetuity of the State to compel the attendance of children belonging to the wealthier class of people, does it follow that the education of the poorer classes is not necessary?

To compel the attendance of children of parents who are too poor to keep them in school, some States have taken decided steps. In Michigan if a parent can not support a child of compulsory school age, the board of education may grant such relief as will enable the child to attend school during the entire school year, not more than $3 a week to be paid a family for one child, nor more than $6 a week for the children of any one family. The law of Oklahoma provides that if a widowed mother needs the support of her child under 10 years of age the county commissioners, on certificate of the county superintendent, may pay the child such sum as may be necessary in lieu of wages.

All cases must necessarily be thoroughly investigated. In Cincinnati the board of education has made arrangements with the local associated charities to have all cases reported by truant officers investigated by the trained social workers of that organization. Relief is afforded only when recommended by them.[1]

An argument offered for such relief is that the benefit arising from the labor of a child under 14 years of age is short-lived, as his earning capacity is small; and if he is allowed to work during his immature years, his earning capacity will never be great, for he will always be an unskilled laborer; he may even become a burden upon society, since it is not likely that he can ever earn much more than a child. If, on the other hand, relief is afforded and the child is permitted to attend school and complete the elementary course of study, his earning capacity and his ability to advance are increased, thus taking him out of the ranks of a class verging upon pauperism.

Franklin H. Giddings, professor of sociology, Columbia University, discussing the social aspect of compulsory education and child-labor laws, says [2] that—

> a very special difficulty, and one that puts all our theories and our devices to a severe test, is that which is presented by destitute families, and that the practical question,

[1] Annals of Am. Acad., vol. 33, sup., p. 79.

[2] Proc. of Nat. Ed. Assoc., 1905, p. 112.

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which has to be answered over and over is: Is it right to take a strong overgrown boy 13 years of age from money-earning employment and force him to attend school, when, by so doing, we compel a widowed mother to apply to private or public relief agencies for help, thereby making her, and perhaps the boy also, a pauper? Prof. Giddings concludes that the only answer, consistent with the policy of compulsory education itself, is the proposition that in such cases adequate public assistance should be given, not as charity, but as a right. * * *

A final and deeper difficulty exists which has received, curiously, little attention. We hear a great deal lately about "race suicide." Large families are no longer seen, especially in the so-called middle class. It is strange that no one has pointed out the connection between the increased demand upon parents to maintain their children in school, foregoing the earnings that children might add to the family income, and the diminishing size of the average family. * * * The question therefore that we shall have to face and to answer is this: Shall the State pay parents for keeping their children in school between the ages of 10 and 14?

SECURING REGULAR ATTENDANCE.

To enroll children of compulsory school age is but the first step in enforcing compulsory-attendance laws; the next step is to secure regular attendance. By referring to the tables, page 25, it will be seen that the percentage of attendance is so low in many States that the efficiency of the schools is only two-thirds as great as it should be when measured in terms of attendance as compared with enrollment. The average effective school year in the United States is only 111.8 days out of an average of 156.8 days the schools are in session. Granting the time necessary for the average child to complete a grade is 156.8 days, the child attending the average time of 111.8 days would need 11.2 years in which to complete an eight-year course. In other words, the child would lose three years, which in most cases would mean the elimination of that child before the eighth grade was reached. If 180 days are necessary to complete a grade, a child attending 111.8 days each year would be 12.9 years completing eight grades.

The following extracts from school reports at once make it evident that if pupils are to be promoted promptly and regularly, and if the schools are to reach their full measure of efficiency, the school officials must not only enroll all the children of compulsory age, but must also secure regular attendance for the whole term. In New York City the highest rate of promotion at the end of the term June, 1911, was among children absent 10 days and less, the rate of promotion being 93.16 per cent. The rate of promotion was lower for pupils absent 11 to 20 days than for pupils absent 10 days by 5.56 per cent; for pupils absent from 21 to 30 days, by 17.85 per cent; for pupils absent from 31 to 40 days, by 18.62 per cent; and lower for pupils absent 41 days and above, by 40.34 per cent.[1]

[1] Report Committee on School Inquiry, New York City, p. 66.

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Effect of irregular attendance upon promotion.[1]

Number of days present.	Promoted more than twice.	Promoted twice.	Promoted once.	Not promoted at all.
180 or more	190	7,484	1,871	124
160 and less than 180	162	5,064	2,027	204
140 and less than 160	58	1,138	934	161
120 and less than 140	16	434	496	154
100 and less than 120	5	217	373	144
80 and less than 100	8	169	767	352
60 and less than 80	3	78	298	379
40 and less than 60	1	65	224	399
20 and less than 40	2	30	150	438
Less than 20	1	17	57	309
Total	446	14,696	7,197	2,664

[1] An. rep. of public schools of Columbus, Ohio, 1911, p. 188.

REPORTING ABSENTEES.

Superintendents of schools often complain that parents, once having enrolled their children, assume that they have met the requirements of the compulsory-attendance law; that they then feel at liberty to keep their children out of school for the most trivial reasons, and it is not uncommon for a teacher to receive notes from parents saying simply that the child "was needed at home." Whenever such excuses are accepted, the compulsory-attendance law at once becomes a dead letter so far as that case is concerned.

Some laws are obviously weak in that no provision is made for reporting absentees to the attendance officer. To secure regular attendance, it is evident that teachers should report at once all absentees who are not legally excused. Some States require teachers to report absentees but once a month, when the monthly report is sent to the superintendent or secretary of the board; some require such reports only once or twice a year. Clearly, if absentees are reported but once a month a parent may keep his child out of school for 20 or more days before he is called to account. Some States do not even specifically require teachers to report absentees to the attendance officer or superintendent.

The effectiveness of compulsory-attendance laws depends to a great extent upon how promptly teachers report unexcused absences, and excuse only those whom the law exempts. Several of the laws recently enacted require reports to be made daily. In cities of the first, second, and third classes in Kentucky the principal of each school must report each day to the city superintendent or truant officer all children absent without lawful excuse. Several States require reports after an absence of three days. In a well-administered school no child should be out of school even for that length of time without the teacher's knowing where such child is, either by a personal visit or by a visit from the attendance officer to discover

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the cause of absence. A close and rigid investigation of all excuses reduces truancy and irregular attendance to a minimum.

An experiment was conducted by the truancy department of the Indianapolis schools several years ago by having the truant officer visit the school daily and obtain the names of all absentees. All cases of absence were visited, even though a good excuse, such as sickness, was known to exist. Although many children were excluded at that time, as medical inspection had been recently introduced, the absentees during the four months' period was 20 per cent ees than for the corresponding period of the preceding year. The method was discontinued, as it imposed too much work upon the officer, whose duties were already heavy. Money so expended would, however, bear dividends far beyond those accruing to the more or less haphazard method under present conditions.[1]

TRUANTS.

Many parents think that compulsory attendance laws are aimed directly at truancy, and that it is the chief duty of the attendance officer to be on the lookout for truants. It is a question, however, whether a truant officer should arrest a boy on the street for playing truant or whether the parent should be arrested. Some truant officers make information against the parent, and if the parent proves that he can not control his child the officer takes charge of the child. In California and other States if a parent presents proof by affidavit that he is unable to compel his child to attend school the parent shall be exempt from penalties, and the child may, in the discretion of the board of education, be deemed a truant and subject to assignment to the parental school.

W. I. Bodine, superintendent of compulsory education in Chicago, says:[2]

> It is the policy of the Chicago compulsory education department to minimize truancy by checking the temporary absentee in the first lapse of attendance at school by prosecuting indifferent parents in instances where they are responsible for truancy and nonattendance and by sending to the parental school those habitual truants who are beyond the control of parents.

The latter class is relatively very small. Of 56,450 cases of nonattendance in St. Louis, 1911–12, there were only 1,709 cases of truancy; 196 were brought to juvenile court, and 27 taken to the home of detention.[3] Of 63,855 cases in Chicago, 3,801 were truant, only 1,352 reporting the offense after the case had been put into the hands of the truant officer.[4] Of 162,124 cases referred to the attendance officers in New York City for investigation, 11,064 were found to be truants. Of this number 5,848 relapsed into truancy and were

[1] Educational review, Indianapolis. 43: p. 80.
[2] Charities, vol. 17, p. 535.
[3] An. Rep. St. Louis, 1911–12, p. 296.
[4] An. Rep. Chicago, 1912, p. 86.

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again returned to school or were committed to a truant school; 151 were committed to a truant school by the city superintendent, and 705 by the children's court.[1] Of the 8,983 cases investigated in the State of Connecticut in 1910–11, there were but 71 truants.[2]

In the small cities and in rural districts where there are only a few truants, it is a problem to know what to do with them, as school boards in cities under twenty-five or thirty thousand population are seldom inclined to establish separate schools for truants. The problem is solved in some States by the establishment of county industrial schools for habitual truants. Many States, however, make no other provision than the State reform school. When there is no other school for truants than a reform school, habitual truants and incorrigible children are often not committed for fear that, bad though they are, to send them there would make them worse.

Experience has shown that effective enforcement of compulsory laws requires two kinds of special schools: One for children who, because of irregular attendance or other causes, are not keeping up with their classes; and the other kind for truants. In each case the work should be adapted to the conditions, and teachers of special skill should be provided.

OFFICERS.

It is obvious that no law can be enforced without proper officials charged with its enforcement. Dr. Andrew S. Draper, writing of the necessity of such officers, says:[3]

> Attendance officers are a vital factor in the proper enforcement of the compulsory attendance law. This statement is true in relation to the enforcement of this law in any part of the State, but it is particularly true in relation to its enforcement in the rural regions. In the populous centers of the State better school organizations generally exist than in the country, and there is permanent work for truant officers. The attendance officers in the country districts are generally engaged in pursuits which demand most of their time, and they do not give sufficient attention to looking after violations of the compulsory attendance law. The fact that men must be chosen for this work who are generally required to engage in some regular business to gain a livelihood renders the selection of such men all the more important. Much of the failure properly to enforce this law grows out of the selection of inefficient attendance officers. It is believed that a better class of such officers would be provided if the authority to appoint them should be transferred from town boards to the new supervisory school officers known as the district superintendents.

Indiana has undoubtedly taken an advance step in the matter of securing a better class of men for attendance officers by enacting that a person to be eligible for appointment as county or other attendance officer shall have completed the eighth grade of the State's common schools or have an education equivalent thereto. One of the chief reasons why inefficient men are often employed, especially in rural

[1] An. Rep. New York City, 1912, pp. 236-239.
[2] An. Rep. of Conn., 1911, p. 111.
[3] An. Rep. of New York State, 1913, p. 61.

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districts and in small cities, is that the salary is usually so low that no capable man will accept the position unless he has some other occupation.

Another officer, the "school visitor" or "visiting teacher," has become one of the efficient means in some cities for securing regular attendance. Miss Mary Flexner, who has made a recent study of the work of these officers, writes:[1]

The visiting teacher was created to bridge a gap in the existing school machinery. Her province lies outside that of the regular teacher, the attendance officer, and the school nurse, though, like the attendance officer and the school nurse, she goes into the child's home. To her is assigned the group called the "difficult" children, and it is her aim to discover, if possible, the cause of the difficulty which manifests itself in poor scholarship, annoying conduct, irregular attendance, or the need of or desire for advice on some important phase of life. It is too much to expect the regular teacher, handicapped as she is by her large class, to cope with such situations. Nor is it to be expected that those qualified to act as attendance officer or school nurse, were they not already burdened, should do the work of the visiting teacher. In her is united the training that makes a teacher and a social service worker, and it is because of this combination that she is able to widen the regular teacher's reach and help her to interpret and solve the problems as they present themselves. From the school she learns that the child is apparently making little effort, that his work is "C" or worse, or that he is perpetually making trouble in the classroom and is never attentive, or that he seems lifeless, unable to keep pace with the class, or that he attends so irregularly it is impossible to teach him anything, or that he has not time to study, and the situation at home is such that he must leave school and go to work.

With these facts as clues, she sets to work; it is impossible to define her methods, for they vary with her tact, her resourcefulness, as with the specific character of the problem before her. Briefly, they are the methods that spring from a friendly interest, an intimate personal relation.

Between the home and the school the visiting teacher vibrates, carrying to the former the school's picture of the child and returning to the school to reenforce that impression or to shed new light upon the problem. There is no fixed number of times that she travels this path, as there is no fixed hour of the day. The urgency and complexity of the situation alone determine her movements. Nor is there any regular routine of action that she follows. Whatever in her judgment seems imperative she endeavors to effect, using to this end everything that the ingenuity of man has devised to make smooth the rough places in life. It is a focusing of interests that she demands. The child is the pivotal point on which she hopes to bring all her knowledge and experience to bear. Sometimes it is the expert teacher's training that she invokes; sometimes the psychologist or the physician, general or special, that she consults, or, again, it is the social worker to whom she appeals. Before these she lays the facts, the reasons why her services have been sought, and from them she asks cooperation.

The results achieved do not always show a complete cure. In some cases there has been a marked improvement in scholarship, conduct, or attendance. At least a good start in the right direction has been made. In others the child has been transferred to a regular class—regular, special, or ungraded—or to a trade school, where his chances at succeeding in making a place for himself are increased. In others the information that the visiting teacher shares with the child's teacher has resulted in a change of attitude on her part or an expansion or contraction of the course of study or in giving the child extra instruction in study periods or out of school hours. Finally, he has been helped to promotion, even to graduation.

[1] Sch. Bd. Jour., July, 1913, p. 35.

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In 1904 Mrs. Dorcas E. Hiser, then director of the truancy department of Indianapolis, Ind., made a special study of the colored schools in that city to determine the causes of the poor attendance at these schools and the best methods of removing those causes. As a result of her investigation, Mrs. Hiser recommended that a trained charity worker be employed as attendance officer for the colored schools and as a friendly visitor for the homes.

A visit was made each day to a different school and a list of absentees was taken from the teacher's register. Then followed a visit to the homes, where each case was handled according to its individual needs.

The chief truant officer, writing of these visits, says in his report for 1909:[1]

> The gain that can be expressed by figures, encouraging though it is, does not compare in importance to the social gain. The former hostility to colored schools and colored teachers has been almost entirely replaced by an increasing race pride in the schools and by a growing consciousness that the school is working with the home for the best interest of the child. The encouraging attitude of colored parents toward their schools is well illustrated by the active parents' club, which is connected with each school.

State agents are undoubtedly of great assistance in the proper enforcement of the attendance law. At present in most States the State department has no direct way of knowing whether more than a perfunctory attempt has been made to carry out the provisions of the law. The commissioner of education of Massachusetts, recognizing the value of such agents, says in his report for 1911–12 that it would be an advantage to education in that State if a specially trained agent were employed to give his services to communities in the enforcement of the laws on compulsory education, on the census, and on the oversight and custody of truants.

In an address before the Pennsylvania State Teachers Association in 1910, John W. Anthony, who had had much experience in small city schools and in the schools of Pittsburgh, said:[2]

> The State department needs one thing more before a thorough enforcement of compulsory education becomes general in our State. Two or three traveling inspectors should be appointed, similar to the high-school inspectors already at work.
>
> On the basis of their reports the department would be able—as it is not able at present, although the law allows it—to withhold one-fourth of any district's appropriation for failure to enforce the law. New York State has 12 such traveling agents. As a result of their reports the State appropriations were withheld last year from 13 school districts.

Unless there is some such inspection it is impossible for the State department to know whether each district in the State has fully complied with the law, and, again, such officers would make it possible to collect the data necessary to determine what legislative changes are needed and how the law could be most effectively administered.

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[1] An. Rep. Indianapolis, 1909, p. 219.

[2] Compulsory Education in Pennsylvania, p. 7.

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AGE.

One other problem difficult to solve in the enactment of compulsory attendance laws is that of determining the proper age limits. The tendency at present is to make 14 or 15 years the age at which a child may withdraw from school, provided he has certain educational attainments. The standard is low in most States, only a few requiring so much as the completion of the fifth grade. The tendency, however, is to strengthen the required educational qualifications regardless of age limit. A committee representing the division of special education of the National Education Association took a very advanced position in 1910 by recommending that [1] the compulsory education laws recognize the difference between the chronological and the physiological age of a child, that the school age limit of each individual child be determined by maturity tests only, no matter whether the child is, in years, above or below the age standard; in other words, that a child's actual age be determined by physio-psychological data corresponding to the normal standard of the age limit required by law, and that all children or persons failing to meet such maturity tests shall be permanently under public supervision and control. This, viewed in the light of present conditicns in most States and cities, would seem ideal rather than practicable, though an ideal, no doubt, worth attempting to realize.

PENALTIES.

No law can be properly enforced unless proper penalties are provided. In most States fines upon parents are, no doubt, sufficiently great to secure a proper enforcement of the law, but in only a few instances are penalties provided for school boards and attendance officers for neglect of duty. In many instances the laws are not enforced because officers and school officials are negligent. In 1909 J. D. Erdliff, who made a report to the State Teacher' Asssociation of Missouri regarding compulsory education in that State, found that 26 cities failed to enforce the law, not because of any serious defect in it, but because of the indifference and neglect of the school authorities in these cities.

ANNUAL PERIOD OF ATTENDANCE.

Many of the early laws did not prescribe a definite time for attendance each year, but, instead, specified so many consecutive weeks, without stating when the period was to begin. This led to confusion, and it was often difficult to determine when a child had attended the prescribed time. Those laws that permit children to

[1] Proc. Nat. Ed. Assoc., 1910, p. 1034.

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attend a certain proportion of the time are also difficult to enforce so as to secure regular attendance. To be effective a definite annual period should be prescribed. Most States, however, now require attendance for the full period school is in session in the district.

CHILD LABOR.

It is not the purpose to discuss the child-labor laws and their enforcement, but rather to call the attention of the reader to some questions regarding child labor that need solution. Owen R. Lovejoy, general secretary of the National Child Labor Committee, says that the following questions are still unsettled and need careful consideration:[1]

1. What classes of children should be entirely eliminated as a factor in the industrial problem?
2. From what industries should all children be eliminated?
3. What regulations should govern the conditions of the children who may wisely be employed?
4. What is to be done with those excluded from industry?

CONCLUSION.

In closing this paper, the following summary is given of the most important factors in their enforcement:

1. An annual school census taken by the school authorities of the city or district.
2. Prompt reports by teachers of public and private schools of all absentees not legally excused.
3. Properly qualified attendance officers who give all their time and attention to the enforcement of the law, and also school visitors in cities having a large foreign or negro population.
4. State agents to see that the laws are enforced.
5. Special schools for truants and pupils irregular in attendance.
6. Relief for indigent parents having children of compulsory age.
7. A definite annual period of attendance.
8. Well-enforced child-labor laws.
9. Employment certificate made to employer and not to be used by child when seeking a new position.
10. Proper penalties on all concerned in the enforcement of the law.

[1] Annals of Am. Acad., vol. 33, sup., p. 50.

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Proportion of children 6 to 14 years of age attending school.[1]

States.	All classes.	Native white.		Foreign-born white.	Negro.
		Native parentage.	Foreign or mixed parentage.		
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Alabama	61.1	70.0	78.1	70.2	49.3
Arizona	67.2	80.4	72.1	61.6	81.5
California	86.9	87.4	88.1	82.3	88.4
Colorado	86.7	86.4	88.4	81.7	85.4
Connecticut	92.3	92.6	92.6	89.2	90.5
Delaware	81.9	83.4	83.4	75.3	76.0
Florida	66.0	72.1	76.1	63.5	57.1
Georgia	65.6	74.8	84.5	76.0	55.4
Idaho	82.1	82.0	84.1	76.2	.....
Illinois	87.8	88.2	88.3	83.8	83.0
Indiana	88.2	88.4	87.6	80.6	87.7
Iowa	90.7	90.8	90.8	82.0	89.3
Kansas	88.2	88.3	89.1	76.7	84.6
Kentucky	76.0	76.3	87.1	83.8	70.3
Louisiana	54.6	68.4	69.7	50.7	57.4
Maine	89.2	90.3	88.4	61.0	90.7
Maryland	80.2	83.3	80.0	75.5	70.7
Massachusetts	92.9	93.9	93.1	88.1	92.0
Michigan	90.7	91.3	90.6	85.6	89.4
Minnesota	88.8	88.8	89.2	86.0	90.0
Mississippi	72.2	84.2	82.9	44.0	63.7
Missouri	85.2	85.5	86.7	80.7	75.9
Montana	82.7	83.5	82.0	76.1	83.1
Nebraska	90.2	90.1	90.8	86.1	87.9
Nevada	83.2	86.3	88.8	76.7	.....
New Hampshire	91.2	92.2	91.3	85.5	.....
New Jersey	88.6	89.6	88.7	83.8	85.7
New Mexico	72.9	76.9	75.1	56.5	73.8
New York	90.0	89.9	90.6	88.3	87.1
North Carolina	71.7	75.7	84.0	64.8	64.0
North Dakota	80.7	82.7	81.5	70.0	.....
Ohio	89.8	90.3	89.2	84.0	87.2
Oklahoma	81.3	82.2	85.5	75.8	76.5
Oregon	85.5	85.1	87.3	82.7	77.5
Pennsylvania	86.5	88.1	84.8	79.6	82.9
Rhode Island	88.8	91.2	89.0	82.4	87.7
South Carolina	62.6	72.1	81.4	72.2	56.1
South Dakota	83.3	84.1	84.6	72.9	86.4
Tennessee	72.1	75.2	83.6	78.9	60.1
Texas	70.2	74.3	60.3	38.4	64.5
Utah	85.6	85.4	87.9	83.5	81.1
Vermont	92.9	93.1	93.3	89.3	87.6
Virginia	68.3	73.2	80.0	71.3	58.7
Washington	85.7	85.9	86.9	83.9	81.3
West Virginia	82.5	83.0	82.9	66.1	72.2
Wisconsin	89.9	90.8	89.7	84.1	88.9
Wyoming	84.5	84.9	85.9	76.4	84.7

[1] Census Bulletin: Reprint of chap. 7, abstract of the Thirteenth Census, 1910, p. 228.

School attendance according to percentages.

High—90 and over.—Connecticut, Iowa, Massachusetts, Michigan, Nebraska, New Hampshire, New York, and Vermont.

Medium—80 to 90.—California, Colorado, Delaware, Idaho, Illinois, Indiana, Kansas, Maine, Maryland, Minnesota, Missouri, Montana, Nevada, New Jersey, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Washington, West Virginia, Wisconsin, Wyoming.

Low—70 to 80.—Kentucky, Mississippi, New Mexico, North Carolina, Texas.

Very low—Below 70.—Alabama, Arizona, Florida, Georgia, Louisiana, South Carolina, Virginia.

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School attendance in 1910–11.

Divisions and States.	Average number of days the schools were kept.	Average number of days attended by each pupil enrolled.	Per cent.	Rank.
United States	156.8	111.8	71.3	.....
North Atlantic Division	179.8	142.4	79.2	1
Western Division	159.3	119.8	75.2	2
North Central Division	164.3	121.3	73.8	3
South Atlantic Division	130.6	85.1	65.2	4
South Central Division	127.8	79.1	61.9	5
Oregon	138.0	120.7	87.5	1
Massachusetts	185.0	153.3	82.9	2
Utah	159.0	131.6	82.8	3
District of Columbia	180.5	144.5	80.0	4
Pennsylvania	170.4	136.2	79.9	5
Indiana [1]	147.0	116.4	79.2	6
New York	186.9	147.6	78.9	7
New Hampshire	168.5	132.1	78.5	8
Illinois	171.0	134.0	78.3	9
Vermont	160.0	124.5	77.8	10
California	173.6	134.0	77.19	11
Connecticut	184.9	142.7	77.17	12
New Jersey	183.0	140.2	76.6	13
Michigan	170.0	127.5	75.0	14
Rhode Island	194.0	145.5	75.0	15
Maine	163.8	122.7	74.9	16
Wyoming	140.9	105.3	74.7	17
Kansas	156.0	115.7	74.2	18
Minnesota	161.3	118.7	73.6	19
Washington	172.3	127.4	73.4	20
Iowa	172.0	126.1	73.3	21
Ohio	165.5	120.8	73.0	22
Nevada [2]	145.3	105.4	72.54	23
Idaho	140.0	101.5	72.5	24
Montana	156.9	113.1	72.1	25
Wisconsin	179.6	128.5	71.6	26
Missouri	155.4	109.0	70.1	27
Nebraska	168.6	118.0	70.0	28
Florida	116.2	80.7	69.5	29
West Virginia	135.0	92.8	68.7	30
Colorado	156.0	106.5	68.3	31
Tennessee	133.0	90.4	67.9	32
North Dakota	151.0	101.5	67.2	33
South Carolina	92.8	61.6	66.4	34
Texas	135.1	89.6	66.3	35
North Carolina	104.1	67.8	65.2	36
Louisiana	135.2	87.1	64.5	37
New Mexico	115.0	74.1	64.4	38
South Dakota	152.0	97.3	64.0	39
Virginia	131.5	84.6	64.3	40
Arizona [2]	135.5	87.0	64.2	41
Delaware [1]	172.5	108.2	62.7	42
Arkansas	113.9	71.9	63.1	43
Georgia	151.4	94.4	62.4	44
Alabama	115.2	71.2	61.8	45
Maryland	185.0	113.4	61.3	46
Oklahoma	130.0	76.3	58.7	47
Mississippi [1]	120.0	66.9	55.8	48
Kentucky	131.8	72.1	54.7	49

[1] Statistics, 1909–10. [2] Approximate.

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I. *Compulsory attendance in the United*

States.	Compulsory age.	Annual period of required attendance.	Reasons for exemption.
Alabama	0	No compulsory law.	
Arizona Sch. Laws, 1912.	8–16	Full time public school is in session.	(1) Physical or mental incapacity as declared by a competent physician approved by the board; (2) completion of grammar-school course; (3) employment certificate issued to a child 14 years of age who can read and write.
Arkansas Sch. Laws, 1911.	[1] 8–16	Not less than one-half the time public school is in session.	(1) If parent is not able to provide proper clothing; (2) if child is physically or mentally incapacitated; (3) if there is no public school within 2½ miles; (4) if the labor of the child is absolutely necessary for the support of the family; (5) if the child has completed a common-school course. Law does not apply to 41 counties.
California Sch. Laws, 1911.	8–15	Full time public schools are in session.	(1) If child is physically or mentally incapacitated; (2) if child is between 12 and 15 and holds a work certificate; (3) if no public school is within 2 miles of child's residence; (4) if the child has completed the grammar-school course; (5) if circumstances render attendance impracticable or dangerous to health.
Colorado Sch. Laws, 1912.	8–16	Entire time public schools are in session.	(1) If child is over 14 and has completed the eighth grade; (2) if his help is necessary for his own or his parents' support; (3) if for the best interests of the child; (4) bodily or mental incapacity.
Connecticut Sch. Laws, 1912.	7–16	Full time the public school is in session.	(1) If child is lawfully employed at labor at home or elsewhere; (2) if parent is unable to provide suitable clothing; (3) if the child's mental or physical condition is such as to render its instruction inexpedient or impracticable.
Delaware Sch. Laws, 1909.	7–14	5 months each year; may be reduced to 3 at the annual meeting.	(1) Mental, physical, or other urgent reasons approved by the county superintendent; (2) if there be no public school in session within 2 miles.
Dist. Columbia U. S. Stat. L., vol. 34, Pt. I, 1905–1907.	8–14	During entire term.	(1) Has acquired common-school branches; (2) physical or mental incapacity.
Florida	0	No compulsory law.	
Georgia	0	....do	
Hawaii Sch. Laws, 1911.	6–16		(1) No school within 4 miles and no suitable transportation; (2) physical or mental incapacity; (3) completion of grammar grades and 13 years old; (4) 15 years old and employed.
Idaho Sch. Laws, 1911.	8–18	Entire school year.	(1) If child is over 14 years of age and has completed the eighth grade, and its help is necessary for its own or its parents' support, and it can be shown that it is for the best interest of the child; (2) if the child's health does not permit attendance.
Illinois Sch. Laws, 1912.	7–16	Entire time school is in session; not less than 6 months.	(1) If child's physical or mental condition renders attendance impracticable; (2) if child is excused for cause temporarily; (3) if between 14 and 16 and necessarily employed.

[1] 16–20 if not regularly employed.

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States—Ages, period required, exemptions, etc.

Relief to children unable to attend on account of poverty.	Part-time instruction for children employed.	Instruction authorized in lieu of public schools.	Compulsory education for deaf, dumb, and blind children.
		Private and parochial schools regularly organized and taught by competent teachers. Home instruction under competent teacher in common-school branches.	
School board shall furnish books.		Private, parochial, or parish schools not less than one-half the time the public schools are in session.	
		Private schools giving instruction in branches usually taught in primary and grammar schools; home instruction in common-school branches.	Parents of deaf, dumb, or blind children must send them to suitable school for a term of 5 years, unless excused by the board of trustees for physical incapacity. The board of education may establish separate classes in the primary and grammar grades for deaf children between 3 and 21 if there are 5 or more in the district.
Truant officers shall report such cases to authorities charged with relief of the poor who shall afford suitable relief.	Where there is no public or parochial evening school, an age and school certificate for a child under 16 shall not be approved unless said child can read at sight and write legibly simple sentences.	Private or parochial school for the entire time during which the public schools are in session.	
	No person between 14 and 16 who can not read and write shall be employed in any town where public evening schools are established unless he attends evening school.	Instruction in the studies taught in the public schools. Teacher shall keep a register of attendance, open to inspection, and shall make reports to the State board of education.	
		Private school for the compulsory period, legally qualified private teacher, or other means approved by county superintendent.	
		Instruction in same branches for a like period of time as in the public schools. A certificate of attendance signed by the person in charge of such schools is required.	
		Private school	
		Private or parochial school; the same period as the public-school session.	
		Private school, at least 6 months; instruction for a like period in the elementary branches by a competent person.	

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I. *Compulsory attendance in the United States—*

States.	Compulsory age.	Annual period of required attendance.	Reasons for exemption.
Indiana..... Sess. Laws, 1913.	[1] 7–14	For a term not less than that of public school.	Physically or mentally incompetent, upon certificate of a reputable physician.
Iowa..... Sess. Laws, 1913. Sch. Laws, 1911.	7–16	At least 24 consecutive weeks, commencing with the first week of school after the 1st day of September.	(1) If child lives more than 2 miles from any school, unless transported free; (2) if excused for sufficient reasons by any court of record; (3) if attending religious service or receiving religious instruction.
Kansas..... Sch. Laws, 1911.	8–15	Full period school is in session.	(1) Any child 14 years of age able to read and write and regularly employed is not required to attend for more than 8 consecutive weeks in one year; (2) if child has graduated from the common schools; (3) if physically or mentally incapacitated.
Kentucky..... Sch. Laws, 1912.	(?)	Full period public schools are in session.	(1) Unfit mentally and physically to attend school, upon certificate of health officer; (2) over 14 and lawfully employed.
Louisiana..... (Parish of Orleans only.) Sch. Laws, 1912.	8–16	Full time.....	(1) If bodily or mental condition of child is such as to render attendance inadvisable; (2) completion of the prescribed elementary course; (3) no public school within 20 blocks of child's home; (4) over 14 and regularly employed for 6 hours a day.
Maine..... Sch. Laws, 1913.	7–15	Time school is in session.	(1) Necessary absence may be excused by the superintendent of schools or the superintending school committee; (2) physical or mental unfitness for school work.
Maryland..... Sch. Laws, 1912.	[2] 8–14	Not less than 4 months; entire school session in Baltimore.	(1) Cases of necessary absence may be excused by superintendent or principal; (2) mentally and physically incompetent; (3) shall apply only to those counties where the board of county commissioners shall approve the same and appoint an attendance officer; (4) law is mandatory in Baltimore city only; 6 counties are exempt; other counties may adopt law.
Massachusetts..... Sch. Laws, 1911.	[4] 7–14	Entire time public day schools are in session.	(1) School authorities may excuse necessary absences; (2) if child has already acquired branches required by law; (3) physically or mentally incompetent.

[1] And 14–16, if not employed.

[2] 7–16 in cities; 7–12 in country districts.

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Ages, period required, exemptions, etc.—Continued.

Relief to children unable to attend on account of poverty.	Part-time instruction for children employed.	Instruction authorized in lieu of public schools.	Compulsory education for deaf, dumb, and blind children.
The school trustees of the district shall furnish temporary aid.	If vocational schools are established for children over 14 who are engaged in regular employment, the board of education may require attendance not less than 5 hours per week.	Private or parochial school for a period equal to that of the public school.	Any blind or deaf child between 8 and 16 who can not secure an education in the public schools of the district must attend the Indiana School for the Blind or the Indiana School for the Deaf.
		Private or parochial school where the common-school branches are taught for at least 24 consecutive weeks. Equivalent instruction by a competent teacher.	
		Private, denominational, or parochial school taught by a competent instructor.	Every person having control of any deaf, dumb, or blind child between the ages of 7 and 21 years, inclusive, shall send such child to some suitable school.
		Private or parochial school for no shorter period than that of the city in which the child resides. Home instruction subject to the same examinations as other pupils of the city.	
		Private or parochial school during the time the public schools of the city are in session. Instruction at home in the common branches.	
		An approved private school; certificate of attendance must be filed with the school officials of the town. Equivalent instruction elsewhere.	
		Schools other than public, during term of compulsory attendance.	Every deaf and blind child between 6 and 16 is required to attend some school for the deaf or blind for 8 months, unless receiving instruction elsewhere.
Trustees officers in cities and overseers of the poor in towns shall provide for the temporary care of indigent children under 16. Such children may be placed in the care of a suitable person or committed to the custody of the State board of charity.	White public evening school is maintained, any minor over 14 who can not read and write shall not be employed unless he is a regular attendant at such evening school, unless physical condition will not permit such attendance in addition to daily labor.	School committees shall approve a private school only when the instruction in all the studies required by law is in the English language, and when such instruction equals the public schools in the same city or town.	No physical or mental condition which is capable of correction, or which renders the child a fit subject for special instruction at public charge in institutions other than public day schools, shall avail as a defense.

[3] 14–16 if not employed.

[4] And 14–16 if not able to read and write.

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I. *Compulsory attendance in the United States*—

States.	Compulsory age.	Annual period of required attendance.	Reasons for exemption.
New Jersey..... Sch. Laws, 1911; Sess. Laws, 1913.	7–14[1]..	Entire time public school is in session.	(1) If above 15 and has completed the grammar-school course and is regularly employed. If child be under 17 and has completed the grammar-school course and is not regularly employed such child shall attend high school or manual-training school; (2) bodily or mental incapacity; (3) if above 14 and it is necessary for the child to be employed.
New Mexico..... Sch. Laws, 1909.	7–14...	.....do.....	(1) Physical unfitness, certified by a regular practicing physician; (2) if child lives more than 3 miles from a public school.
New York..... Sch. Laws, 1912; Sess. Laws, 1913.	7–14[2]..	In cities at least 160 actual days. In other districts time school is in session from Oct. 1 to June 1.	(1) If over 14 and an employment certificate has been granted; (2) physical or mental incapacity.
North Carolina..... Sess. Laws, 1913.	8–12...	4 months.....	(1) Physically or mentally incompetent as attested by a legally qualified physician; (2) if child resides 2½ miles from a public school; (3) if, because of extreme poverty, the services of the child are necessary; (4) if the parent is not able to provide books or clothing.
North Dakota..... Sch. Laws, 1911.	8–15...	Entire time public schools are in session.	(1) If necessary for the child to support the family; (2) completion of branches taught in the public schools; (3) physical or mental condition such as to render attendance impracticable; (4) if there is no school within 2½ miles, except where transportation is furnished for pupils residing within 5 miles.
Ohio..... Sess. Laws, 1913; General Statutes, 1910.	8–16[3]..	Full time; in no case less than 28 weeks.	Physically or mentally incompetent.....

[1] And 14–16 unless child attended 130 days during preceding year and has completed 5 five grades.
[2] And 14–16 if not regularly employed.

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Ages, period required, exemptions, etc.—Continued.

Relief to children unable to attend on account of poverty.	Part-time instruction for children employed.	Instruction authorized in lieu of public schools.	Compulsory education for deaf, dumb, and blind children.
.....	.....	Any school in which at least the common school branches are taught.....	In each school district where there are 10 or more blind or deaf children who are not now cared for or who can not be cared for in any institution a special class or classes shall be organized for their education.
.....	.....	May attend private or denominational school if the teaching is equal to that of the public school of the district.	Attendance is required at New Mexico asylum of all deaf and dumb children between 8 and 21. County superintendent shall report all such children to the superintendent of the asylum.
.....	Every boy between 14 and 16 in a city of the first or second class having an employment certificate but not having completed the course of study for the elementary schools, shall attend public or other evening schools for not less than 6 hours each week for at least 16 weeks, or upon a trade school for 8 hours a week for 16 weeks.	Instruction elsewhere equivalent to that given in the public schools; attendance must be for a like period.	
.....	.....	Continuous attendance upon any private or church school taught by competent teachers. Said schools must keep records.	
.....	.....	Private or parochial school approved by the county superintendent, teaching common-school branches.	Every parent or other person having control of any deaf, blind, or feeble-minded child between 7 and 21 is required to send for school year such deaf child to the school for the deaf at Devils Lake; and such blind child to the school for the blind at Bathgate, and such feeble-minded child to the institution at Grafton
School board must furnish such relief as may be necessary.	If the board of education establishes part-time day school for the instruction of employed youths over 15, such youths who have not completed the eighth grade must continue their schooling until 16. If regularly employed they are required to attend not more than 8 hours a week between 8 a. m. and 5 p. m during the school term.	Private or parochial school for the full time school is in session; in no case for for less than 28 weeks. Instruction at home by a qualified person.	

[9] Females, 8–16; males, 8–15; and 8–16 if not employed

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I. *Compulsory attendance in the United States—*

States.	Compulsory age.	Annual period of required attendance.	Reasons for exemption.
Oklahoma..... Sch. Laws, 1912.	8–16...	From 3 to 6 months in the discretion of the board.	(1) Mental or physical disability; (2) proficient in the standard studies; (3) employment upon certificate.
Oregon..... Sch. Laws, 1911.	9–15...	Term of district.....	(1) Physically or mentally incompetent; (2) children between 9 and 10 living 1½ miles and children over 10 living more than 3 miles from a public school; (3) completion of common-school branches.
Pennsylvania..... Sch. Laws, 1911.	8–16...	Entire public school term. May be reduced by the board of school directors to not less than 70 per cent of school term.	(1) Mental, physical, or other urgent reasons; (2) if child between 14 and 16 can read and write intelligently and is regularly employed.
Porto Rico..... Sch. Laws, 1911.	8–14...	Full time.....	(1) Completion of course of study; (2) no school within reasonable distance.
Rhode Island..... Sch. Laws, 1910.	7–15...	Entire time public schools are in session.	(1) Completion of studies taught in the first 8 years in public schools; (2) 14 years of age and lawfully employed; (3) physically or mentally incompetent.
South Carolina.....	.....	No compulsory law...	.....
South Dakota..... Sch. Laws, 1911.	8–14	Entire term public schools are in session; district board may decrease to 16 weeks, 12 consecutive.	(1) Completion of common school branches; (2) physically or mentally incompetent.
Tennessee..... Sess. Laws, 1913.	[1] 8–14	80 consecutive days, or full term if term is less than 80 days. Full term in separate school systems having a population of 5,000.	(1) Extreme destitution of parents; (2) mentally or physically incapacitated; (3) no school within 2 miles of child's residence and public transportation not provided; (4) completion of elementary school course.
Texas.....	.....	No compulsory law.	.....
Utah..... Sch. Laws, 1911; Sess. Laws, 1907.	8–16	At least 20 weeks, 10 consecutive. In cities of first and second class 30 weeks, 10 consecutive.	(1) Completion of branches taught in the district schools; (2) physically or mentally incompetent; (3) no school within 2½ miles of child's residence; (4) services necessary to support a mother or an invalid father.

[1] And 14–16 if not employed and unable to read and write.

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Ages, period required, exemptions, etc.—Continued.

Relief to children unable to attend on account of poverty.	Part-time instruction for children employed.	Instruction authorized in lieu of public schools.	Compulsory education for deaf, dumb, and blind children.
If any widowed mother needs the support of her child under 16, on certificate of the county superintendent the county commissioners may pay to child such sum as may be necessary in lieu of wages.	.....	Private or other schools for same term as public schools.	
.....	.....	Private or parochial school for same period as public school. Instruction from parent or private teacher, with permission from county superintendent.	Deaf, dumb, and blind children between 8 and 16 are required to attend one of the State institutions, unless taught elsewhere.
If any child is unable to attend school on account of lack of clothing or food, such case shall be reported to any suitable relief agency or to the proper directors of the poor for investigation and relief.	.....	Private school, whose work is in compliance with the provisions of the compulsory attendance act. Instruction by properly qualified private teacher.	
.....	.....	Any school of recognized standing.	
.....	.....	A private school or private instruction, if school committee are satisfied that such instruction is substantially equal to that required by law.	Attendance of deaf and dumb children between 7 and 18 at Rhode Island Institute for the Deaf is compulsory unless the child is receiving instruction elsewhere.
.....	.....	.....	
.....	.....	Instruction by a competent person at a private day school for the period the public schools are in session.	Whenever any deaf or blind child of proper age is being deprived of proper education, the county judge shall order such child sent to some public or private school for the education of the deaf or blind. Every county superintendent or city superintendent shall send the names of all deaf and blind children to the superintendent of such schools.
.....	.....	Private or parochial school.	
.....	.....	.....	
.....	.....	Private school for time fixed by law. Home instruction in branches and for period fixed by law.	Parents having control of deaf, dumb, and blind children between 8 and 18 shall send them to the Utah School for the Deaf and the Utah School for the Blind for at least 6 months in each year unless taught at home or unless they have acquired the legal branches or are physically or mentally incompetent.

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I. *Compulsory attendance in the United States—*

States.	Compulsory age.	Annual period of required attendance.	Reasons for exemption.
Vermont..... Sch. Laws, 1912.	8–16	At least 150 days; for entire term if longer than 150 days. If child over 16 is enrolled in a public school, it must attend regularly.	(1) Physically or mentally incompetent; (2) completion of branches taught in the elementary schools; (3) if legally excused.
Virginia..... Sch. Laws, 1911.	8–12	At least 12 weeks, 6 consecutive.	(1) District school trustees may excuse for cause; (2) weak in body and mind; (3) can read and write; (4) lives more than 2 miles from the nearest public school or more than 1 mile from line of school wagon route; (5) act does not apply to any county, city, or town until qualified voters avail themselves of the provisions thereof.
Washington..... Sch. Laws, 1909; Sess. Laws, 1909.	[1] 8–15	Full time public school is in session.	(1) Physically and mentally incompetent; (2) reasonable proficiency in branches taught in the first 8 grades of the public schools.
West Virginia..... Sch. Laws, 1911.	8–15	24 weeks, beginning with the opening of school.	(1) Sickness or death in pupil's family; (2) other reasonable cause; (3) no school within 2 miles.
Wisconsin..... Sch. Laws, 1911.	[2] 7–14	In cities of first class, full period; in all other cities not less than 8 months; in towns and villages, not less than 6 months.	(1) Physically or mentally incompetent; (2) no schoolhouse within 2 miles, unless transportation is provided; (3) completion of course of study for first 8 grades.
Wyoming..... Sch. Laws, 1913.	7–14	Entire time public school is in session.	(1) Invalids or others to whom the schoolroom might be injurious; (2) pupils to whom the provisions of this act might work a hardship, excuse to be granted by district board; (3) pupils excluded for legal reasons.

[1] And 15–16 if not regularly employed.

II. *Compulsory attendance—Officers,*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
Arizona..... Sch. Laws, 1912.	Deputy sheriff, constable, city marshal, or attendance officer.	Inquire into all cases of neglect of duties; secure prosecution.	.....	.....
Arkansas..... Sch. Laws, 1911.	Attendance officers.	Serve notice upon parents; arrest without warrant; serve subpœnas.	Board of education.	In any city or district having 10,000 or more population the board may establish truant schools.

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Ages, period required, exemptions, etc.—Continued.

Relief to children unable to attend on account of poverty.	Part-time instruction for children employed.	Instruction authorized in lieu of public schools.	Compulsory education for deaf, dumb, and blind children.
.....	.....	Otherwise furnished the instruction required by law.	Board of civil authority of towns must return the number of deaf, dumb, and blind between 5 and 14 to the county clerk and he report to the governor, who designates beneficiaries to be sent to institutions for the deaf, dumb, and blind.
.....	Two weeks' attendance at half-time or night school shall be considered equivalent to an attendance of one week at a day school.	Private school.....	
.....	.....	Private school for time public schools are in session.	Parents of the deaf or blind are required to send them each year to the State school for the deaf and the blind.
.....	.....	Instructed elsewhere if thoroughly and systematically for legal period of time.	
.....	Whenever any evening school or continuation school is established in any town for minors between 14 and 16 working under permit, every such child shall attend not less than 5 hours per week for 6 months in each year. Every employer is required to make a reduction in hours of not less than the number of hours the minor is required to attend school.	Approved private or parochial schools, keeping a record of attendance open to the inspection of the truant officer.	Upon application by the board of education of any village or city to the State superintendent he may grant permission to establish and maintain one or more schools for the deaf and blind. Any parent having a child between 6 and 16 incapacitated for attending a common school shall send such child to some special school for at least 8 months during any school year.
.....	.....	Private or parochial school for period public schools are in session.	

[1] And 14–16 if not regularly employed.

parental schools, penalties, etc.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers reports of absence.
.....	.....	Parent, $5 to $25; officers not more than $50.	Census marshal shall take census of all children, showing numbers attending public school, private school, and no school. Required to visit each house.	
	.....	Parent, $10 to $25.....	.....	

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II. *Compulsory attendance—Officers,*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
California..... Sch. Laws, 1911.	Attendance officer, board of education, or board of trustees; 1 attendance officer required for each 20,000 census children in any city.	.....	Board of education.	Board of education of any school district having 600 census children may establish parental schools; two or more districts may unite.
Colorado..... Sch. Laws, 1912.	Truant officer.....	Vested with police powers, authority to enter factories, etc., where children are employed; shall institute proceedings against violators; shall keep a record of his transactions; shall petition the county court to inquire into cases of habitual truancy.	Board of school directors.	Shall be established in each city having 100,000 inhabitants or more; may be established in cities having a population between 25,000 and 100,000. Parent and guardian must bear cost of maintenance.
Connecticut..... Sch. Laws, 1912.	Truant officers, the police in cities, and bailiffs, constables, and sheriffs.	Police, bailiffs, constables, and sheriffs shall arrest all boys between 7 and 16 who habitually wander about the streets or loiter in public places during school hours and may question any boy under 16 during such hours.	By every town and the mayor and alderman of every city.	Any habitual truant may be committed to any institution of instruction or correction in the city, borough, or town, or if the child be not less than 10, to a State institution.
Delaware..... Sch. Laws, 1909.	Attendance officer.	Arrest without warrant those who fail to attend school; proceed against offending parents.	Board of education and school committees.	Truant and incorrigible pupils may be sentenced for a definite time to proper State institution.
Dist. Columbia.. U. S. Stat. L., vol. 34, Part I, 1905–1907.	Truant officers....	Carry out provision of this act; visit places where minor children are employed; demand as often as twice a year from all employers a list of children employed, with their ages.	Board of education.	Board of education may establish ungraded schools for habitual truants or for incorrigibles.
Florida.....	None.....	No compulsory law....	.....	.....
Georgia.....	.....do.....	.....do.....	.....	.....
Hawaii..... Sch. Laws, 1911.	Deputy sheriff....	Visit not less than once each week each public school to secure the names of children absenting themselves.	.....	.....
Idaho..... Sch. Laws, 1911.	Probation officer..	Serve notice upon parents to place such children in school as been reported by the county superintendent.	Probate courts	.....
Illinois..... Sch. Laws, 1912.	Truant officers....	Report all violations to the board of education, enter complaint against and prosecute all persons who appear guilty of such violation, arrest truants and any child of school age that habitually haunts public places.	Board of education.	In cities having 100,000 population or more, one or more truant schools shall be established; may be established in cities having 25,000 to 100,000 population.

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parental schools, penalties, etc.—Continued.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers' reports of absence.
Not to exceed remainder of current year.	Parent may give bond that child will attend regularly.	Parent, not more than $10 for first offense or imprisonment not more than 5 days; not less than $10 for each subsequent offense, or imprisonment 5 to 25 days.	.....	
Until 14 years of age unless sooner discharged.	Board of education shall establish rules, but no child may be paroled in less than 4 weeks of commitment.	.....	Secretary of board of directors shall take a census of all persons over 6 and under 21.	
Not more than 3 years.	.....	Parent, fine not to exceed $5; each week's failure is a distinct offense.	Committee of each school district shall ascertain the name and age of every person over 4 and under 16, and whether attending school or employed.	
.....	.....	Parent, not more than $2 for first offense, nor more than $5 for each subsequent offense.	Assessors make a list of all children between 7 and 14.	Each teacher at the close of each school month shall report to the attendance officer and the county superintendent the names of all absentees.
Until satisfactory evidence of improvement.	.....	Parent, not more than $20.	.....	
.....	.....	.....	.....	
.....	.....	.....	.....	
.....	.....	Parent, $5 to $50 or imprisonment not more than 2 months.	.....	
.....	.....	Parent, fine not to exceed $300 or imprisonment not exceeding 6 months.	Clerk of board of trustees required to enumerate all children 8–18; teachers shall check enrollment list against census list.	At the beginning of each month teachers shall report to the county superintendent all unlawful absentees of the previous month.
May be committed until 14.	No child shall be paroled in less than 4 weeks of date of commitment.	Parents, $5 to $20, with cost of suit.	.....	

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II. *Compulsory attendance—Officers,*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
Indiana ..... Sch. Laws, 1913.	Truant officers....	May enter any place where children are employed to determine whether they are employed in violation of the child-labor law; enforce the provisions of the compulsory school act.	County school board or boards of separate districts and cities.	All common school corporations are empowered to maintain a separate school for incorrigible and truant children. Any habitual truant may be sentenced to one of the State institutions for boys or girls.
Iowa ..... Sch. Laws, 1911; Sess. Laws, 1913.	Truant officers; board of directors. In school corporations of 20,000 or more the board of directors shall appoint one or more truant officers, and in other school corporations they may appoint truant officers.	Enforce the compulsory school law, sue, and institute criminal proceedings against violators.	Board of directors.	Board of directors of any school corporation may establish truant schools or set apart separate rooms for habitual truants. If child is habitually vagrant or incorrigible, he may be committed to one of the State industrial schools.
Kansas..... Sch. Laws, 1911.	Truant officers....	Shall see that the provisions of compulsory attendance act are observed; serve notices upon delinquent parents and make complaints, if necessary, in juvenile court.	Boards of education in cities of first and second class. County superintendents shall divide counties into truant districts, and the board of county commissioners shall, upon the nomination of the county superintendent, appoint a truant officer for each district.	.....
Kentucky..... Sch. Laws, 1912; Sess. Laws, 1912.	Truant officers. In each city of the first, second, third, and fourth class at least 1 for 10,000 census children; 1 in each city with less than 10,000 school census children.	In cities of the first class, must not engage in any other occupation during time school is in session each year; shall examine into cases of truancy, serve notices on parents, proceed against delinquent children and parents, report all violations of the child-labor law.	Board of education.	The school officials of any city of the first or second class may establish one or more parental schools.
Louisiana ..... (For parish of Orleans.) Sch. Laws, 1912.	Truant officers....	Have full police powers, authority to serve warrants and to enter factories and other places where children may be employed; serve notice on parents, make complaint against parents in proper court.	Board of school directors.	.....

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parental schools, penalties, etc.—Continued.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers' reports of absence.
.....	.....	Parent, $1 to $25 or imprisonment 2 to 90 days; attendance officers, $5 for each failure.	An annual school census is required; the enumerators shall record place and date of birth of every child enumerated.	
.....	.....	Parent, $3 to $20; any officer, $10 to $20.	Officers taking school census shall ascertain the number of children of ages 7 to 16, inclusive, in their respective districts, the number of such children not attending school, and if possible the cause of failure to attend school.	
.....	.....	Parent, $5 to $25.....	The enumerator of the school census shall record the name, place, and date of birth of every child enumerated	Every teacher is required, before receiving each month's salary, to make a report to the county superintendent or to the city superintendent of all pupils who have been truant or habitually absent during the month
.....	Child may be paroled subject to the visitation of a probation officer; no child shall be released in less than 4 weeks nor unless the court is satisfied that it will attend school regularly.	Parent, $5 to $20 for the first offense, $10 to $50 for every subsequent offense, and cost of suit.	Truant officers in cities of first, second, third, and fourth class shall furnish the principal of each school a list of all children between 7 and 17.	The principal of each school in cities of first, second, third, or fourth class shall report each day to the city superintendent or a truant officer all children absent without lawful excuse. Teachers shall report to subdistrict trustees and to county board the names of all parents failing to comply with compulsory school law.
.....	.....	Parent, not more than $5 for first offense nor more than $10 for each subsequent offense; in default of payment of fines, imprisonment not exceeding 5 days.	.....	

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II. *Compulsory attendance—Officers,*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
Maine..... Sch. Laws, 1911.	Truant officers....	Inquire into all cases of neglect of duty on part of parents in not keeping their children in school; report result to the superintending school committee; prosecute any person neglecting to send his children to school, if so ordered by the school committee or superintendent; arrest and take pupils irregular in attendance to school, when directed by the school committee; may visit factories, etc., to ascertain whether minors under 15 are employed; may execute warrants.	Each city and town shall annually elect one or more truant officers.	On complaint of truant officer an habitual truant, if a boy, may be committed to the State school for boys, or if a girl, to the State industrial school for girls.
Maryland ..... Sch. Laws, 1912.	.....do.....	To arrest without warrant any truant and deliver truant to parent or teacher; visit all establishments where minors are employed.	Boards of school commissioners.	Parental schools may be established for habitual truants; 2 or more counties may jointly establish a parental school.
Massachusetts... Sch. Laws, 1911.	.....do.....	Inquire into all cases arising under the compulsory attendance act; make complaints and serve legal processes relating to compulsory school attendance; have oversight of children placed on probation; apprehend and take to school, without warrant, any truant or absentee.	School committees.	County commissioners of each county, with exception, are required either separately or jointly with the commissioners of other counties to maintain a truant school.
Michigan..... Sch. Laws, 1911.	Truant officers; police.	Have all the powers of a deputy sheriff and perform the duties of truant officer in all districts of the county; county truant officer, when directed by the county commissioner to do so, shall inspect the outhouses in primary districts and order repairs.	County commissioners of schools; city boards of education; boards in graded school districts. In cities having organized police force, the police authorities shall detail one or more members at the request of school board as truant officers.	May be established in graded or city district by school board. Every boy between 10 and 16 and every girl between 10 and 17 convicted of habitual truancy or of frequenting disreputable places may be committed to a State institution.

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parental schools, penalties, etc.—Continued.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers' reports of absence.
.....	.....	Parent, fine not to exceed $25, imprisonment not to exceed 30 days; any city or town neglecting to elect a truant officer and truant officer neglecting required duties, fine not less than $10 nor more than $50.	Superintendent of every town must make returns annually to the State superintendent of number of persons between 5 and 21.	
For such period as board may prescribe.	.....	Parent, fine not exceeding $5 for each offense.	Police commissioners of Baltimore City shall make a record of name, age, color, and sex of every child between 6 and 16, and the place and year and month when such child last attended school.	The head teacher of every school shall report immediately to the school commissioners or to an attendance officer the names of all children who have been unlawfully absent 3 days.
Until 16 years of age.	A court by whom a child has been convicted may place such child on probation.	Parent, fine not more than $20.	A school census shall be made of all children between 5 and 15 years of age and of all minors over 14 who can not read at sight and write.	
.....	.....	Parent, $5 to $50 or imprisonment 2 to 90 days, or both.	.....	The last school census shall be compared with the enrollment, and the names of children not in attendance must be reported to city truant officer or county commissioner.

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II. *Compulsory attendance—Officers,*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
Minnesota..... Sch. Laws, 1911.	Truant officers....	Investigate all cases of truancy or non-attendance, make complaints, serve notices, and attend to the enforcement of all laws and regulations respecting truant, incorrigible, and disorderly children and school attendance; may arrest without warrant; make reports to State superintendent.	Board of education.	School boards may maintain ungraded schools for truants, etc., between 8 and 18. If such school is inadequate to secure attendance the child may be committed to the State training school.
Mississippi.....	None.....	No compulsory law...	.....	.....
Missouri..... Sch. Laws, 1911.	Truant officer.....	To serve notices upon parents; visit any establishment employing children; arrest without warrant all truants; require properly attested birth certificates or affidavits when in doubt about child's age.	School boards in cities or districts of 1,000 or more population.	May be established in cities or districts having 10,000 or more population. For every child committed $10 per month shall be paid the board of education out of city or county treasury, for support of the child.
Montana..... Sch. Laws, 1913.	Truant officers in cities, or constable may be appointed in villages and township districts.	Vested with police powers, the authority to serve warrants and to enter places where children may be employed; take into custody anyone between 8 and 14 or between 14 and 16 unable to read and write, who is not attending school; institute proceedings against parents; keep a record of his transactions; report daily to superintendent of schools or clerk of school board.	Board of trustees.	In districts having population of 25,000 or more there shall be, and in districts having population of less than 25,000 there may be, established industrial schools for habitual truants or incorrigible children.
Nebraska..... Sch. Laws, 1911.	Truant officers....	Shall qualify as police officers; shall enforce the compulsory attendance law; may apprehend and take to his home or to some school any child who should be in school.	Board of education.	Boards of education in cities may establish special schools for truants and incorrigibles.
Nevada..... Sch. Laws, 1911.	Attendance officer.	Duty of attendance officer, or any peace officer, or any other school officer to arrest during school hours, without warrant, any child between 8 and 16 reported absent from instruction, who shall be delivered to the teacher or parent.	Board of trustees.	Boards of trustees are authorized to establish special schools for habitual truants or for insubordinate pupils.
New Hampshire. Sch. Laws, 1911.	Truant officer.....	To enforce the laws relating to truants and children between 8 and 16 not attending school, and the laws prohibiting the employment of children; may visit manufacturing and	School boards.	.....

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parental schools, penalties, etc.——Continued.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers' reports of absence.
.....	.....	Parent, fine not less than $50 or imprisonment not more than 30 days; any school officer, truant officer, teacher, principal, or superintendent, fine not to exceed $10 or imprisonment not over 10 days.	A complete census of all children between 6 and 16 shall be taken by the clerk of the school board or by some one appointed by the board. Copies of the census must be sent to the county superintendent, and if a city district to the city superintendent, before the first day of school.	Teachers, upon receipt of list of pupils of school age and those excused, shall report names of those not excused who are not attending school.
.....	.....	Parent, $10 to $25 or imprisonment 2 to 10 days, or both.	Teachers must be furnished a copy of the last enumeration list at the beginning of the term.	The secretary of board in city, town, or village schools, and clerks in other districts, shall file with county superintendent the names of parents not complying with provisions of compulsory attendance act.
.....	No child shall be released upon parole in less than 4 weeks, nor until the superintendent of such industrial school is satisfied that the child will attend school regularly.	Parent, $5 to $20; any officer or principal, $25 to $50 for each offense.	District clerk shall make annually a census of all persons between 6 and 21 and a separate census of all children under 6.	Principals and teachers shall report all cases of truancy or incorrigibility as soon as possible.
.....	.....	Parent, $5 to $25.....	In taking the annual census, enumerators shall record place and date of birth of each child enumerated, together with the school attended.	Teachers, principals, or superintendent shall report any one violating compulsory attendance act as soon as possible.
Not to exceed the remainder of the school year.	.....	Parent, fine of not more than $10 or imprisonment for not more than 5 days for first offense, and $10 to $50 or imprisonment 5 to 25 days for each subsequent offense.	Board of trustees shall appoint some one to make a census of all children.	
.....	.....	Parent, $10 for each offense.	Truant officers or another agent are required to take a census of children between 5 and 16.	

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II. *Compulsory attendance—Officers.*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
New Hampshire (continued).		other establishments to ascertain whether children are unlawfully employed; may demand evidence of age of child.		
New Jersey..... Sch. Laws, 1911.	Truant officers; police authorities.	Board shall prescribe their duties and make rules and regulations regarding same.	Board of education; police authorities in any municipality shall, upon written request of the board of education, detail one or more members of the police force as truant officers.	Board of education of any school district may maintain a school for children between 7 and 14 who are habitual truants or who are habitually insubordinate.
New Mexico..... Sch. Laws, 1909.	County superintendent shall require directors to enforce the law.	.....	.....	.....
New York..... Sch. Laws, 1912.	Truant officers....	May arrest without warrant any child between 7 and 16 who is a truant, and shall deliver the child to a teacher or if an habitual truant or incorrigible to a police magistrate. May enter any place of business to examine employment certificates.	School authorities in cities, etc.; in all other districts, the town board with approval of district superintendent.	School authorities of any city or school district may establish truant schools for habitual truants or disorderly children between 7 and 16; or such authorities may order such children to be committed to a private institution controlled by persons of the same religious faith as the parent.
North Carolina.. Sch. Laws, 1913.	Attendance officer.	An attendance officer shall be appointed for each township to enforce the compulsory school laws and to serve a taker of school census. He shall serve notices upon parents; may visit places of employment; may require birth certificates or affidavit stating child's age; shall keep a record of all notices served, all cases prosecuted, and make an annual report to the county board.	County board of education.	.....
North Dakota... Sch. Laws, 1911.	Truant officer in cities or school districts of over 500.	Clerk or secretary of the board of education shall notify the county superintendent, who shall lay the case before the State's attorney.	Board of education in cities or districts of over 500 may employ.	.....

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parental schools, penalties, etc.—Continued.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers' reports of absence.
For such time as board may prescribe.	.....	Parents punishable as disorderly persons.	Board of education may cause to be taken an exact census of all children between 5 and 18, not more often than once in 5 years.	
.....	.....	Parent, $5 to $25 or imprisonment not more than 10 days.	An enumeration of all unmarried persons between 5 and 21.	
Not to exceed 3 years.	The authorities committing any such child, and school superintendent in cities and districts having such, may parole truant.	Parent, not more than $5 or 5 days' imprisonment for first offense, and for each subsequent offense not over $50 or imprisonment not over 30 days, or both; the State commissioner of education may withhold one-half of all public moneys for nonenforcement.	In cities of the first class a permanent census board consisting of the mayor, the superintendent of schools, and police commissioner shall ascertain through the police force the residence and employment of all persons between 4 and 18; census shall be amended day by day as changes in residence occur; the school authorities in school districts shall cause a census of all children between 5 and 18.	
.....	.....	Parent, $5 to $25 or imprisonment not to exceed 30 days; any teacher willfully neglecting to report absences shall have $5 deducted from his salary for the current month.	The attendance officer shall take an annual census and furnish each superintendent principal, or teacher in charge a copy of the school census.	Shall render weekly reports of absences during compulsory period to attendance officer and to county superintendent.
.....	.....	Parent, $5 to $20 for for first offense and $10 to $50 for each subsequent offense, with cost in each case.	The school board shall cause an enumeration of all unmarried persons between 6 and 21.	

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II. *Compulsory attendance—Officers,*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
Ohio..... Sess. Laws, 1913; Sch. Laws, 1912.	Truant officers....	Vested with police power; may serve warrants; may enter workshops and all other places where children are employed; may take into custody any youth between 8 and 15, or between 15 and 16 if not employed and not attending school; shall institute proceedings against any officer, parent, or corporation violating compulsory attendance laws; shall keep on file names of all children between 15 and 16 to whom age and schooling certificates have been granted who desire employment; shall make daily reports to the superintendent or the clerk of the board.	Board of education.	Truants under 10 years of age may be sent to a children's home; a delinquent child under 17 may be committed, if a boy to a training school for boys, or if a girl to an industrial school for girls.
Oklahoma..... Sch. Laws, 1912.	Truant officers in cities, etc.	Enforcement of compulsory attendance act.	Board of education.	.....
Oregon..... Sch. Laws, 1911.	Truant officer; one appointed for districts of the second and third class for each county.	Shall notify parents, investigate all cases of truancy or nonattendance; in counties of less than 100,000 inhabitants he shall act as probation officer and see that the child-labor law is enforced.	District boundary board. In districts of the first class police authorities are required, at request of school board, to detail one or more members as truant officers, but board may appoint any citizen not a police officer.	.....
Pennsylvania.... Sch. Laws, 1911.	Attendance officers shall be elected in districts of the first, second, or third class, and may be in districts of the fourth class. Any 2 or more districts may join in the appointment of an attendance officer.	Shall have full police power; without warrant, notify parents; have power and authority to enter any place where children are employed and to inspect employment certificates.	Board of school directors.	May be established by board of school directors. Habitual truants or incorrigibles may be sent to reformatory schools or committed to the care of a probation officer by juvenile court.

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parental schools, penalties, etc.—Continued.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers' reports of absence.
Discharged, on recommendation of trustees.	Judge may commit delinquent child to a probation officer, and may allow the child to remain at home, subject to the visitation officer.	Parent, $5 to $20 or imprisonment 10 to 30 days.	Census of all unmarried youth between 6 and 21 shall be taken annually, designating the number between 6 and 8, between 8 and 14, between 14 and 16, and between 16 and 21.	
.....	.....	Parent, $10 to $50.....	Board of education shall furnish to superintendent of all public or other schools in cities, or to the teachers in other districts, the names of all children between 8 and 16.	A report required to the board of education not less than 14 nor more than 26 weeks before close of last term of school for the year, which report shall contain the names of all children between 8 and 16 who have attended school and the period of attendance.
.....	.....	Parent, $5 to $25, or imprisonment not less than 2 to 10 days, or both; board, officer, principal, or teacher, $5 to $20.	Every district clerk shall enroll annually all persons over 4 and under 20. A copy of the census shall be forwarded the county superintendent.	Every month the census list and the enrollment list must be compared and absentees reported to secretary of the district boundary board, or if a district of the first class to the truant officer.
.....	.....	Parent, fine of not more than $2 for first offense and not more than $5 for each succeeding offense; in default, not more than 5 days in jail.	Board of school directors shall cause to be made an enumeration of all children between ages of 6 and 16, and the name of the school the child attends, and the name of the employer, if employed; census list shall be sent to county or district superintendent.	Principal or teacher shall report at once to attendance officer the names of all children who have not appeared for enrollment and from time to time all children who have been absent 3 days.

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II. *Compulsory attendance—Officers,*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
Porto Rico..... Sch. Laws, 1911.	Municipal authorities.	.....	.....	.....
Rhode Island.... Sch. Laws, 1910.	Truant officers....	Clothed with power of special constables; may make complaint of any violation of compulsory attendance act; serve legal processes; visit places where minor children are employed; demand twice a year from all employers a report containing names of all children under 16 employed by them; may make complaint against habitual truants.	School committee.	Children convicted of truancy shall be committed to the Sockanosset School for Boys or to the Oaklawn School for Girls.
South Carolina..	None.....	No compulsory law...	.....	.....
South Dakota... Sch. Laws, 1911.	Truant officer in cities and independent districts; county superintendent for all other districts.	Enforce the provisions of compulsory attendance act; arrest truants and children who habitually haunt public places and have no lawful occupation.	Board of education of city or town independent districts.	Board of education may set aside a room or building for the detention and instruction of habitual truants or insubordinate children.
Tennessee..... Sch. Laws, 1911.	Truant officers may be elected in any city or town having an independent school system; clerk of board in other districts.	The secretary or clerk shall report to the board at each regular meeting all lists of absences and all excuses and shall bring suit for the board in any case in which said board may order suit to be brought.	.....	The board of education in any city or town having an independent school system may establish truant schools.
Texas.....	None.....	No compulsory law...	.....	.....
Utah..... Sch. Laws, 1913.	Truant officer.....	Make complaints and arrest; serve legal process. County truant officer shall be made a deputy sheriff, and city truant officer shall be made a special policeman.	Board of education of county district of the first class, or board of education of any two or more such districts. City boards of education may appoint.	Board of education of any city of the first or second class, or board of education of any 2 or more such cities, or of any county district of the first class, may provide for parental school and for the support and education of the inmate thereof.
Vermont..... Sch. Laws; Sess. Laws, 1913; Sch. Laws, 1911.	Truant officers; the sheriff, deputy sheriffs, constables, and police officers shall also be truant officers ex officio.	Shall inquire into child's nonattendance, notify parents, may stop a child of school age wherever found during school hours and take him to the school he should attend; notify overseer of poor if parents can not provide necessary clothing.	Board of school directors.	Upon conviction of truancy a child may be sentenced to the Vermont Industrial School.

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parental schools, penalties, etc.—Continued.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers' reports of absence.
.....	.....	Parent, first offense, public reprimand; second offense, not more than $5; third offense, not more than $10.	.....	
Not to exceed period of minority.	Court may defer sentence and place child on probation in custody of a truant officer or probation officer.	Parent, not more than $20.	School committee or an agent shall annually take a census of all persons between 5 and 15.	
.....	.....	Parent, $10 to $20; school officer or employee, $10 to $20.	The clerk of the school district board, or the board of education, shall take an annual census of all children under 21 and over 6; house to house visitation required.	
.....	.....	Parent, first offense, $1 for each day child is absent; fine for first offense may, upon payment of costs, be suspended until party is convicted of second offense.	Annual school census required, a copy of which shall be furnished to the person in charge of each school.	At the close of each school month each teacher or principal shall transmit to the clerk of board of education a statement of all absences of children between 8 and 14.
For a term not extending beyond the age of 14 for truants and 16 for neglected children.	May be paroled in accordance with by-law established by the board or boards of education.	Parent guilty of a misdemeanor.	Census made each year of all children 6 to 18, to include number attending public school and number attending private school. Clerk of the board of school directors shall provide the teacher of each school with list of all children required to attend such school.	
Not less than 20 weeks.	.....	Parent, $5 to $25; truant officer or other officer authorized to make arrests, not more than $100.	Clerk of board shall annually make a list of all children of school age and make such report therefrom as the superintendent of education may require; shall deliver a list of such children to the teacher.	Teacher shall notify the truant officer in case a child between 8 and 15, or in case an enrolled child over 16 fails to attend.

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II. *Compulsory attendance—Officers,*

States.	Officers charged with enforcement.	Powers and duties of truant officers.	By whom officers are appointed.	Truant and parental schools—Establishment.
Virginia..... Sch. Laws, 1911.	Clerk of district board.	Each district board shall in February and September of each year ascertain the condition of all children between 8 and 12 years of age who are not in attendance at any public school and shall report all violations to its district clerk, who shall proceed to prosecute.	.....	.....
Washington..... Sch. Laws, 1909.	Attendance officer in incorporated city districts; county superintendent in other districts.	Any attendance officer may be a sheriff, constable, a city marshal, or a regularly appointed policeman. Vested with police powers, authority to make arrests and serve legal processes, to enter places in which children may be employed, to take into custody any child between 8 and 15 who may be a truant, and to conduct such child to his parents or to school; to arrest without warrant; shall keep a record of his transactions, and make reports.	Board of education for incorporated city districts.	.....
West Virginia... Sch. Laws, 1911.	Truant officer.....	If from personal knowledge or complaint the truant officer believes that any child of compulsory school age has been absent from school for 2 days, he shall immediately give written notice to the parent. If notice is not complied with he shall make complaint against such parent.	Board of education.	.....
Wisconsin..... Sch. Laws, 1911.	Truant officers; sheriff.	In cities of the first class 10 or more truant officers shall be appointed; in all other cities having more than 2,000 population 1 or more, who shall see that the provisions of the compulsory attendance act are enforced. In all cities having less than 2,000 population and in all towns and villages the sheriff shall be truant officer.	Board of education.	.....
Wyoming..... Sch. Laws, 1913.	Truant officer; sheriff.	Give notice to parent that attendance is required of such parent's child; make and file complaints against parents.	District board in a city or town of more than 2,500 inhabitants may appoint.	.....

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parental schools, penalties, etc.—Continued.

Period of commitment of child.	Paroles.	Penalties for violations.	Census.	Teachers' reports of absence.
		Parent, $2 to $10 for the first offense and $5 to $20 for each subsequent offense; clerk of district board, $5 to $10.	Clerk of each district board shall take a census of all persons between 7 and 21 every five years.	
		Parent, not more than $25.	The district clerk or secretary shall provide the teacher with a copy of the last census of school children; census of all persons between 5 and 21 shall be taken by the secretary or by enumerators appointed by him.	Every teacher shall report to the truant officer, principal, or superintendent all cases of truancy or incorrigibility.
		Parent, $2 for the first offense, $5 for each subsequent offense.	Enumeration to be taken and reported in separate classes; all youth between 6 and 16, all between 16 and 21, and all between 8 and 15, and, in districts containing kindergartens, all between 4 and 6.	Teachers in ungraded schools and principals and superintendents in graded and high schools shall report to truant officers all cases of violation and shall furnish information and reports for a hearing.
		Parent, $5 to $50, with costs, or imprisonment in the county jail not exceeding 3 months, or both; any official or teacher, $5 to $25.	Census of all children over 4 and under 20, one copy to be delivered to head teacher.	Teachers shall report attendance and enrollment.
		Parent, $5 to $25 or imprisonment for not more than 90 days.	Clerk of each school district to furnish the sheriff or constable a list of names of children of compulsory school age.	At the close of the first week of school each teacher shall forward a list of pupils attending to the proper officials. When pupil has been absent 3 days without valid excuse, or is habitually absent or tardy, teacher shall make written report to the truant officer.

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III. CHILD LABOR.—*Employments prohibited,*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Alabama..... Sch. Laws, 1911.	Under 12: In any mill, factory, or manufacturing establishment. Between 12 and 16: Unless such child shall attend school 8 weeks in every year of employment, 6 of which shall be consecutive.	Under 14: Not more than 60 hours a week; between 16 and 18, not more than 8 hours a night; under 16, not between 7 p. m. to 7 a. m.	Under 18: Affidavit from parent stating date and place of birth of child.
Arizona..... Sch. Laws, 1912.	Under 14: In any mill, factory, workshop, mercantile establishment, tenement house, store, business office, telegraph or telephone office, restaurant, bakery, barber shop, apartment house, bootblack stand or parlor, or in the distribution or transportation of merchandise or messages, or in any business whatsoever during school hours. Under 16: Sewing machine belts; adjusting belts; oiling, wiping, or cleaning machinery; operating circular or hand saws; and other dangerous machinery; the preparing of any composition in which dangerous or poisonous acids are used, etc. Under 18: Extra hasardous occupations.	Boys under 16 and girls under 18: Not more than 48 hours a week, nor more than 8 hours a day, nor before 7 a. m. or after 7 p. m.	Under 16: Age and schooling, showing that the child is 14.
Arkansas..... Sch. Laws, 1910; Kirby's Digest, 1904.	Between 8 and 14: In any mine, factory, workshop, mercantile, or in any manner during school hours.	Under 14: Between 7 p. m. and 6 a. m. or for more than 60 hours a week or more than 10 hours a day.	Affidavit of parent, certifying age and date of birth, filed with employer. Under 14: A certificate of school attendance.
California..... Sch. Laws, 1911.	Under 15: In any mercantile institution, office, laundry, manufacturing establishment, workshop, place of amusement, restaurant, hotel, apartment house, or in the distribution or transmission of merchandise or messages. A permit may be granted a child over 12 years of age to work upon the sworn statement of his parents that they (parents) are incapacitated for labor through illness.	Under 18: Not more than 9 hours a day, nor between 10 p. m. and 5 a. m.	Between 15 and 16: Age and schooling certificate filed with employer.
Colorado..... Sch. Laws, 1912.	Under 14: At any gainful occupation in any theater, concert hall, or place of amusement where intoxicating liquors are sold, or in any mercantile institution, store, office, hotel, laundry, manufacturing establishment, bowling alley, elevator, factory, or workshop, or as messenger or driver thereof; nor at any gainful work when the public schools are in session. Under 16: To be exhibited, used, or employed as an actor or performer in any concert hall or room where intoxicating liquors are sold or given away; or in any variety theater, or for any business or vocation injurious to the morals or dangerous to the life or limb of the child, such as mining, adjusting belts to machinery, operating planers, etc.	Under 14: Before 7 a. m., or after 8 p. m.; not more than 8 hours a day for any one under 16.	Between 14 and 16: Age and school certificate.

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hours of labor, certificates, penalties, etc.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
Parent; filed with employer, probate judge, or State inspector.	Affidavit of parent.	.....	.....	.....	State prison inspector.	Employer, fine not less than $50 nor more than $100.
Superintendent of city, county, or town schools.	School record, passport, birth certificate, baptismal certificate, affidavit of parent.	Read and write legibly, simple sentences in the English language, and instruction equivalent to 5 yearly grades in the common school branches.	.....	.....	Factory and other duly authorized inspectors, and school attendance officers.	Employees or parent, fine of $5 to $200 or imprisonment 10 to 30 days.
.....	.....	Read or write his or her name and simple sentences in English.	.....	.....	.....	Any violator, fine of $5 to $10.
Superintendent of schools of the city or by a person authorized by the local school trustee.	School census, certificate of birth or baptism, public register of birth, or some other manner.	Read English at sight, write legibly and correctly simple English sentence, unless a regular attendant for the then current term at a regularly conducted night school.	.....	Over 12: Permit signed by the principal, vice principal, or secretary of the school board.	Commissioner of the bureau of labor statistics, school district authorities.	Every person authorized to sign employment certificate, $5 to $50 or imprisonment for not more than 30 days, or both; employer, $50 to $200, or imprisonment for not more than 60 days, or both.
Superintendent of schools, or if there is no superintendent, by some one authorized by the school board.	Last school census, certificate of birth or baptism, register of birth with town clerk records of the public or parochial schools; affidavit.	Read at sight and write legibly simple sentences, unless a regular attendant at an evening school.	.....	.....	State factory inspector; truant officers.	Parent or guardian, $5 to $25; persons authorized to sign the employment certificate, $5 to $100; employer, $5 to $100; second violation by anyone, $100 to $500, or imprisonment not to exceed 90 days, or both.

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Connecticut..... Sch. Laws, 1912.	Under 14: In any mechanical, mercantile, or manufacturing establishment; under 16, all dangerous machinery, dangerous or poisonous acids, explosives, etc.; under 18, as operator of elevator running at a speed of over 200 feet a minute.	Under 16: Not more than 58 hours in any calendar week.	Between 14 and 16: An age and school certificate filed with employer.
Delaware..... Sess. Laws, 1913.	Under 12: In any cannery or packing establishment other than those engaged in canning or packing fruits and vegetables. Under 14: In any mill, factory, workshop, merchantile or mechanical establishment, tenement house, manufactory or workshop, office, office building, restaurant, boarding house, bakery, barber shop, hotel, bootblack stand, public stable, garage, laundry, or as a driver, or in any brick or lumber yard, or in the construction and repair of buildings, or in the transmission of messages, or with dangerous machinery, or in any occupation when the public schools are in session. Under 15: In occupations dangerous to the life or limb or injurious to the health or morals.	Under 16: Not more than 6 days a week nor more than 54 hours a week, nor before 7 a. m., or after 6 p. m.	Under 16: A certificate of age and schooling filed with employer; on termination of employment certificate to be returned to the official issuing it.
Dist. Columbia... Statutes, 1911.	Under 14: In any factory, workshop, merchantile establishment, store, business office, telegraph or telephone office, restaurant, hotel, apartment house, club, theater, bowling alley, laundry, bootblack stand, or in the distribution or transmission of merchandise or messages, or at any work for wages during the hours the public schools are in session; judge of juvenile court may permit a child between 12 and 14 to work if parents actually need the support of the child.	Under 14: not before 6 a. m., nor after 7 p. m.; not more than 8 hours a day, nor more than 48 hours a week.	Under 16: Age and schooling certificate filed with employer; permit to sell papers in public places required.
Florida..... Statutes, 1906.	Under 14: In occupations dangerous to life or limb or injurious to the health or morals. Under 15: Except with consent of those having lawful control, for more than 60 days.	Not over 10 hours a day.....	.....
Georgia..... Sch. Laws, 1911.	Under 10: In any factory or manufacturing establishment. Under 12: Unless parents are dependent upon child for support. Under 14: Except as above, unless child has certain educational qualifications.	Under 14: Not in any factory between 7 p. m. and 6 a. m.	Affidavit from parent certifying to the age of the child and attendance at school filed with employer.
Idaho..... Sch. Laws, 1911.	Under 14: In any mine, factory, workshop, merchantile establishment, store, telegraph or telephone office, laundry, restaurant, hotel, apartment house, or in the distribution or transmission of merchandise or messages, nor in any such business	Under 16: Not before 6 a. m., nor after 9 p. m., nor more than 54 hours a week, nor more than 9 hours a day.	Between 14 and 16: Employer shall keep a record of the names, ages, and place of residence.

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
Secretary of State board of education, or a school superintendent, etc.	The person issuing the certificate may require an affidavit from the parent.	To read with facility, to write legibly simple sentences, to perform the operations of the fundamental rules of arithmetic.	School authorities may cause any child to be examined by a reputable physician.	.....	State factory inspector; State board of education, school visitors, school boards.	Every person employing or permitting the employment not more than $100.
Superintendent of city of Wilmington or by superintendents of the counties or some one authorized by them.	Birth certificate, passport, baptismal certificate, school census, affidavit.	Read intelligently and write legibly simple sentences in the English language.	.....	Vacation certificates permit the child to work the entire year, excepting when required to attend school.	Factory inspector.	Anyone employing or permitting a child to work $5 to $50 for first offense; $50 to $200 or imprisonment for not more than 30 days for second offense; for third offense, not less than $200, or imprisonment for not more than 60 days, or both. Any person authorized to issue employment certificates, $5 to $100.
Superintendent of public schools or one authorized by him.	Certificate of birth or baptism or other religious record, register of birth, or affidavit of parent.	Read at sight and write legibly simple sentences in the English language; must have attended school at least 130 days during the school year previous to applying for such school record.	The person issuing the certificate must certify that the child is physically able to perform the work he or she intends to do.	.....	Inspectors and truant officers.	Whoever employs or permits a child to be employed, not more than $50; every person authorized to sign the certificate, not more than $50.
.....	.....	.....	.....	.....	.....	Employer, not over $20 or imprisonment not over 60 days.
.....	.....	Write his or her name and simple sentences, and shall have attended school for 12 weeks of the preceding year, 6 weeks of which must have been consecutive.	.....	.....	.....	Employer or parent; prescribed in section 1039 of the Penal Code of Georgia, 1895.
.....	.....	Read at sight and write legibly simple sentences in the English language, and has received	.....	.....	Probation officers or school trustees.	Employer and parent, not more than $50; for theatrical employment $50 to $200 or imprisonment

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Idaho (contd).	during public school hours. Under 16: Unless he meets educational requirements. Under 16: In theatrical performances or in any business injurious to the health or dangerous to the life or limb of the child.		
Illinois..... Sch. Laws, 1912.	Under 14: In any theater, concert hall, or place of amusement where intoxicating liquors are sold, or in any merchantile institution, store, office, hotel, laundry, manufacturing establishment, bowling alley, passenger or freight elevator, factory or workshop, or as messenger or driver thereof, or at any employment for wages while the public schools are in session. Under 16: In extra hazardous occupations, such as oiling machinery, operating circular saws, etc.	Under 14: Not more than 8 hours a day nor before 7 a. m. or after 6 p. m. Under 16: Not more than 48 hours a week, nor more than 8 hours a day, nor before 7 a. m. or after 7 p. m.	Between 14 and 16: Certificate of age and schooling.
Indiana..... Sess. Laws, 1911 and 1913.	Under 14: In any gainful occupation other than farm work or domestic service. Children between 12 and 14 may work in canneries between June 1 and October 1. Under 16: In any tobacco warehouse, cigar or other tobacco factory, hotel, theater, or place of amusement, or in any employment injurious to health or morals. Under 16: In the operation of dangerous machinery. Boys under 16 and girls under 18: In any brewery, distillery, saloon, concert hall, or any other establishment where malt or alcoholic liquors are manufactured, packed, wrapped, or bottled, or in dipping, dyeing, or packing matches or manufacture of explosives. Girls under 18: In any capacity that requires constant standing.	Under 16: Not more than 48 hours a week nor more than 8 hours a day without the written consent of the parent, but in no event more than 54 hours a week or 9 hours a day; not before 7 a. m. nor after 6 p. m.	Between 14 and 16: Age and schooling certificate.
Iowa..... Sess. Laws, 1906.	Under 14: In any mine, manufacturing establishment, factory, mill, shop, laundry, slaughter house, or packing house, or in any store or mercantile establishment where more than 8 persons are employed, or in operating any freight or passenger elevator. Under 16: In any occupation where life and health are endangered.	Under 16: Not before 6 a. m. nor after 9 p. m.; not more than 10 hours a day, exclusive of noon intermission.	Employer required to post a list of children under 16, giving name, date of birth, and date when employed.

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
		instruction in spelling, English grammar, and geography, and is familiar with the fundamental operations of arithmetic up to and including fractions or has similar attainment in another language.				not exceeding 6 months or both.
Superintendent of schools or some one authorized by him.	Last school census; certificate of birth or baptism; register of birth; records of public or parochial schools; affidavit of parent.	Read at sight and write legibly simple sentences, unless the child is a regular attendant at an evening school.	.....	.....	Factory inspector.	Parents, $5 to $25; employer, $5 to $100; person authorized to sign employment certificate, $5 to $100.
Executive officer of the common school corporation.	Certificate of birth or baptism, passport, or first-school enumeration in which the age of the child appears, or by affidavit.	Passed the fifth grade.	Official issuing certificate certifies that child is physically fit.	.....	Inspector....	Any violator, $5 to $200, to which may be added imprisonment for not more than 10 days; second offense, imprisonment 10 to 30 days.
.....	.....	.....	.....	.....	Commissioner of bureau of labor statistics, factory inspectors, State mine inspectors, county attorneys, mayors, chiefs of police, city and town marshals, sheriffs, or anyone authorized by the judge of a court of records.	Employer and parent, not to exceed $100 or imprisonment not to exceed 30 days.

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Kansas..... Sch. Laws, 1911.	Under 14: In any factory, workshop not owned or operated by the child's parent, any theater, or packing house, or operating elevators, or in or about any mine or in any business or service whatever during public-school hours. Under 16: In any occupation or at any place dangerous or injurious to life, limb, health, or morals.	Under 16: Not more than 8 hours a day nor more than 48 hours in a week, nor before 7 a. m. or after 6 p. m.	Under 16: Employers shall obtain an age certificate.
Kentucky..... Sch. Laws, 1912.	Under 14: In any factory, workshop, mine, mercantile establishment, store, business office, telegraph office, restaurant, hotel, apartment house, or in the distribution or transmission of merchandise or messages, or in any business or service whatever during public-school hours. Under 16: In any occupation dangerous or injurious to limb, health, or morals.	Under 16: Not more than 60 hours a week nor more than 10 hours a day, nor before 7 a. m. or after 7 p. m.	Employer must keep on file an employment certificate of children between 14 and 16.
Louisiana..... Sess. Laws, 1906.	Boys under 12 and girls under 14: In any factory, mill, warehouse, workshop, or manufacturing establishment.	Under 18: Not more than 10 hours a day nor more than 60 hours a week, 1 hour a day being allowed for dinner.	.....
Maine..... Sch. Laws, 1913.	Under 14: In any manufacturing or mechanical establishment, telephone or telegraph office, or in the delivery and transmission of telephone or telegraph messages.	Females under 18 or males under 16: Not more than 10 hours in a day nor more than 58 hours in a week.	Between 14 and 16: An age and schooling certificate.
Maryland..... Sess. Laws, 1912.	Under 12: In any cannery or packing establishment, store, office, boarding house, place of amusement, club, or in the distribution, transmission, or sale of merchandise. Under 14: In any mill, factory, mechanical establishment, tenement house, manufactory or workshop, office building, restaurant, bakery, barber shop, hotel, apartment house, bootblack establishment, public stable, garage, laundry, or as a driver, or in any brick or lumber yard, or in the construction and repair of buildings, or as a messenger for telegraph, telephone, or message companies. Under 16: In connection with dangerous machinery or in any occupation dangerous to life or limb or injurious to the health or morals. Under 18: In blast furnaces docks or wharves, electric wires, elevators, hoisting machines or dynamos, cleaning machinery, switch tending, motormen, etc.	.....	Under 16: Employment certificate.

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
School officials certify to census record.	School census; affidavit of parent to employer.	.....	.....	.....	State factory inspector, State inspector of mines.	Employer, $25 to $100 or imprisonment 30 to 90 days.
Superintendent of schools or, if none, by the county superintendent of schools.	School record, passport, certificate of birth or baptism, record of birth, affidavit of parent.	Read and write simple sentences in the English language.	.....	.....	Labor inspector.	Parent or employer, not more than $50. For every day such employment continues after notice, $5 to $20.
.....	.....	.....	.....	.....	Factory inspector.	Employer, $10 to $25 or imprisonment for not more than 30 days, or both.
Superintendent of schools.	Town clerk's record, certificate of baptism, passport, or other document satisfactory to the superintendent.	Read at sight and write simple sentences in the English language, and perform simple arithmetical problems involving the fundamental processes.	Persons issuing certificate may require a health certificate.	.....	Commissioner of labor.	Employer or parent, $1 to $50. Those authorized to sign age and schooling certificate, $25 to $50.
In Baltimore by the chief of the Maryland Bureau of Statistics. In the counties by the county superintendent of schools.	Birth certificate, passport, school census affidavit of parent.	Read intelligently and legibly simple sentences in the English language and has completed a course of study equivalent to five yearly grades in reading, spelling, writing, English language and geography, and is familiar with the fundamental operation of arithmetic up to and including fractions.	Certificate signed by a physician that child is physically able to do the work applied for.	Vacation certificate entitles child of 12 to work except when school is in session.	Factory inspectors, attendance officers.	Employer or parent, not more than $50 for first offense, and not more than $200 or imprisonment for not more than 30 days for second offense. Those issuing certificates not more than $100.

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Massachusetts.... Sch. Laws, 1911.	Under 14: In any factory, workshop, or mercantile establishment, or in any work while the public schools are in session. Minors to whom this law applies may work on Saturdays between 6 a. m. and 7 p. m.	Under 14: Not before 6 a. m. nor after 7 p. m.	Under 16: Age and schooling certificate.
Michigan..... Sess. Laws, 1911.	Under 14: In any mercantile institution, store, office, hotel, laundry, manufacturing establishment, mine, bowling alley, theater, passenger or freight elevator, factory or workshop, telegraph or messenger service. Under 16: In any theater, variety show, moving-picture show, burlesque show, or other kind of playhouse, music or dance hall, pool room or billiard room; may be employed by traveling theatrical companies for acting a part. Females under 21 and males under 18: In any employment or where their health may be injured or morals depraved. Under 21: In any theater, concert hall, or place of amusement where intoxicating liquors are sold.	Males under 18: Not more than an average of 9 hours a day or 54 hours a week, nor more than 10 hours a day. Under 16: Not between 6 p. m. and 6 a. m.	Under 16: Permit.
Minnesota..... Sch. Laws, 1911; Sess. Laws, 1913.	Under 14: In any factory, mill, or workshop, in any mine, in the construction of any building, or about any engineering work, or in any employment during the school term except for theatrical exhibitions or concerts on consent of mayor or president of the council. Under 16: In any employment dangerous to the life, health, or morals of such children.	Under 16: Not more than 60 hours in a week nor more than 10 hours in a day, or before 7 a. m. or after 7 p. m.	Between 14 and 16: Age and schooling certificate.

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
Superintendent of schools.	Certificate of birth or baptism, town clerk's register, other evidence under oath.	Read at sight and write legibly simple sentences in the English language.	Person issuing certificate must have a certificate from a physician, or a written record in the schools made within a year regarding child's health.	.....	Inspector of factories and truant officers.	Employer or parent, not more than $300 or imprisonment for not more than 6 months or both. For every day after notice has been served, $20 to $100, or imprisonment for not more than 6 months. For forging a certificate, $100 to $500 or imprisonment for not less than 3 months nor more than 1 year, or both fine and imprisonment.
Superintendent of schools or county commissioner of schools.	Passport, record of birth or baptism or other religious record. If none of these can be produced, a statement from a physician of the board of health certifying the age of the child.	Attendance 100 days during year previous to arriving at 14 or during year previous to applying for certificate; read intelligently and write legibly; satisfactory completion of fourth grade.	Physician officially connected with the board of health in doubtful cases.	Limited vacation permits granted. Child to report once a month to person who issued permit.	Factory inspectors.	Any violator, $10 to $100 or imprisonment 10 to 90 days.
Superintendent of schools or, if none, by chairman of school board.	School record, birth certificate or affidavit of parent.	Read and write simple sentences in English; instruction in reading, spelling, writing, English grammar, and geography, and familiarity with the fundamental operation in arithmetic, including fractions.	In doubtful cases of physical fitness the medical officer of the board of health.	.....	Commissioner of labor.	Employer or parent, not more than $50; for every day after being notified, $5 to $25.

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Mississippi..... Sess. Laws, 1912.	Boys under 12 or girls under 14: In any mill, factory, manufacturing establishment or cannery. Under 16: In any occupation without consent of parent.	Boys under 16 or girls under 18: Not more than 8 hours in a day or more than 48 hours in a week, or between 7 p. m. and 6 a. m.	Affidavit of parent to employer that child is 16.
Missouri..... Sch. Laws, 1911.	Boys under 10 and girls under 16: Selling newspapers, etc. Under 14: In any gainful occupation, except at agricultural pursuits and in domestic service. Under 16: In any employment dangerous to life and limb or injurious to the health or morals.	Under 16: Not more than 48 hours in a week nor more than 8 hours a day, nor between 7 p. m. and 7 a. m.	Under 16: Age and schooling certificate.
Montana..... Sch. Laws, 1913.	Under 14: In any employment while the public schools are in session.	.....	.....do.....
Nebraska..... Sess. Laws, 1907.	Under 14: In any theater, concert hall, or place of amusement, or any place where intoxicating liquors are sold, or in any mercantile institution, store, office, hotel, laundry, manufacturing establishment, bowling alley, passenger or freight elevator, factory or workshop, or as a messenger or driver thereof, or in any business or service when the public schools are in session. Under 16: In any work dangerous to the life or limb, or in which the child's health or morals may be injured.	Under 17: Not more than 48 hours a week nor more than 8 hours a day, nor before 6 a. m. or after 8 p. m.	Under 16: Age and schooling.
Nevada..... Rev. Laws, 1912, 6823–4.	Males under 14 and females under 16: In any store, shop, factory, mine, or any inside employment not connected with farm or house work. Under 18: In any mendicant occupation, indecent or immoral exhibition or practice; any practice or exhibition dangerous or injurious to life, limb, health, or morals, as messenger for delivering communications or merchandise to any house of prostitution, etc.	.....	Males under 14 and females under 16: Written permit.
New Hampshire. Sess. Laws, 1911; Sess. Laws, 1913.	Under 14: In any mill, factory, workshop, quarry, mercantile establishment, tenement house, manufactory or workshop, store, business office, telegraph or telephone office, restaurant, bakery, hotel, barber shop, apartment house, bootblack stand or parlor, or in the distribution or transmission of merchandise or messages.	Boys under 16 and girls under 18, in other than domestic service or work on the farm: Not more than 58 hours a week nor more 11 hours a day, nor between 7 p. m. and 6 a. m.	Under 16: Age and schooling.

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
.....	.....	.....	.....	.....	Sheriff of county; county health officers.	Employer or parent, $50 to $100 or imprisonment 10 to 60 days, or both. Failure of employer to give information, $10 to $100.
Superintendent of schools or, if none, by some one authorized by the board.	School record, passport, certificate of birth or baptism, affidavit of parent.	Read and write legibly simple sentences in the English language.	Persons issuing certificate may request a medical officer of the board of health or a licensed physician to determine physical fitness.	.....	Factory inspector.	Violation of any provisions, fine of not more than $100 or by imprisonment not exceeding one year, or both.
Superintendent of schools; in other districts clerk of board of trustees.	Some satisfactory proof.	Read intelligently and write legibly the English language.	.....	.....	Truant officers.	Any violator, $25 to $50.
Superintendent of schools or, if none, by some one authorized by the school district officers.	School record, passport, certificate of birth or baptism or other religious or official record, affidavit of parent.	Read and write legibly simple sentences in English.	In doubtful cases of physical fitness, a medical officer of the board of health, or a physician approved by the State board of inspectors.	.....	Deputy commissioner of labor, truant officer, and county attorney.	Employer and parent, not more than $50 for first offense; for every day employed after notice has been served, $5 to $20; persons authorized to sign certificates, not more than $50.
Judge of county district court.	.....	.....	.....	.....	.....	Employer or parent, guilty of misdemeanor.
Superintendent of schools or, if none, by a person authorized by school board.	School record, passport, certificate of birth or baptism, or public record.	Completed course of study presented for the elementary schools.	Certificate from a medical officer of the board of health, or a physician designated by school board.	.....	Truant officers; State factory inspector.	Employer or parent, $5 to $200 or imprisonment 10 to 30 days, or both; for every day, after notice $5 to $20; persons authorized to sign certificates, $5 to $200 or imprisonment; superintendents of schools, $5 to $25.

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
New Jersey..... Sess. Laws, 1904,1911,1913.	Under 14: In any factory, workshop, mill or place where manufacture is carried on; or in any mercantile establishment during school hours. Under 21, in any first-class city or under 18 in other municipalities: As messenger for any telegraph, telephone, or messenger corporation, etc., before 5 a. m. or after 10 p. m.	Under 16, in any factory workshop, or mill: Not more than 10 hours a day or 55 hours a week, or before 6 a. m. or after 6 p. m.; in any mercantile establishment not more than 58 hours a week or between 7 p. m. and 7 a. m.	Under 16: Age and schooling.
New Mexico.....	.....	.....	.....
New York..... Sch. Laws, 1912.	Boys under 10 and girls under 16: Selling newspapers, magazines, or periodicals in any public place. Under 14: In any factory, in any business or service whatever during public-school hours. Under 16: In any mercantile establishment, business office, telegraph office, restaurant, hotel, apartment house, theater or other place of amusement, bowling alley, barber shop, shoe-polishing establishment, or in the distribution or transmission of merchandise or messages.	Under 16: Not more than 6 days or 54 hours a week nor more than 9 hours a day, nor between 10 p. m. and 7 a. m. In cities of the first class, not after 7 p. m.	Under 16: Age and schooling.
North Carolina... Sch. Laws, 1913.	Under 12: In any factory or manufacturing establishment. Between 12 and 13: In any factory except as an apprentice, and then only after having attended school 4 months in preceding 12.	Under 16: Not between 9 p. m. and 6 a. m.	Under 16: Certificate of age and schooling.
North Dakota... Sch. Laws, 1911.	Under 14: In any mine, factory, workshop, mercantile establishment, store, business office, telegraph office, restaurant, hotel, apartment house, or in the distribution or transmission of merchandise or messages, or in any business whatever during the hours the public schools are in session. Under 16: In any employments dangerous to life or limb or where health may be injured or morals depraved.	Under 16: Not more than 48 hours in a week, nor more than 8 hours in a day, nor before 7 a. m. or after 7 p. m.	Between 14 and 16: Age and schooling.
Ohio..... Sess. Laws, 1913.	Under 15: In any business whatever during public school hours. Males under 15 and females under 16: In any mill, factory, workshop, mercantile or mechanical establishment, tenement house, manufactory or workshops, store, office, office building, restaurant, boarding house, bakery, barber shop, hotel, apartment house, boot-black establishment, public stable, garage, laundry, place of	Boys under 16 and girls under 18: Not more than 6 days a week, nor more than 48 hours a week, nor more than 8 hours a day, nor between 6 p. m. and 7 a. m. Boys under 18 and girls under 21: Not more than 6 days a week, nor more than 54 hours a week, or between 10 p. m. and 6 a. m.	Boys under 16 and girls under 18: Age and schooling.

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
Superintendent or supervising principal.	Transcript, passport, such other satisfactory documentary evidence or certificate from two physicians that child is 14.	Attended school at least 130 days the twelve months preceding application; read intelligently and write legibly simple sentences in English; completion of fifth grade.	Certificate from medical inspector that child is physically able to work.	.....	Commissioner of labor; any inspector or truant officer.	Employer and parent, $50.
Commissioner of health or person authorized by him.	Birth certificate, passport, or baptismal certificate, or affidavit if no other evidence is accessible, or physician's certificate in cities of the first class.	Attended school not less than 130 days during the twelve months preceding the 14th birthday or during the 12 months next preceding application; read and write simple sentences in English and completion of first six grades.	.....	.....	Factory inspector.	For violating child-labor law, first offense, $20 to $50; for each subsequent offense, $50 to $200.
A certificate from parent giving name and age of child and, if under 13 and more than 12, stating that child has attended 4 months in preceding 12.	.....	School attendance 4 months in the preceding 12.	.....	.....	County superintendent shall investigate and report to the solicitor of the judicial district.	Employer or parent, guilty of a misdemeanor.
Superintendent of schools; if none, clerk of school board.	School record, passport, certificate of birth or baptism or other religious record, public record, affidavit of parent.	Read and legibly write simple sentences in English.	In doubtful cases of physical fitness by a medical officer of board of health.	.....	School board	Any violator, $20 to $50.
Superintendent of schools; if none, clerk of the board of education.	Passport, certificate of birth or baptism or other religious record, public register, school census. If none of the above, affidavit	Sixth grade test if a male and seventh grade test if a female.	A certificate of the school physician or of the board of health.	May be granted boys under 16 and girls under 18.	Factory inspectors, truant officers, and others.	Employer or parent, $5 to $50; for a second offense, $50 to $200, or by imprisonment for not more than 30 days, or both; for a third offense, not less than $200 or im-

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Ohio (contd).	amusement, club, or as a driver, or in any brick or lumber yard, or in the construction or repair of buildings, or in the distribution, transmission, or sale of merchandise. Boys under 15 or females under 21: In the transmission of messages. Under 16: In any occupation dangerous to life and limb, or injurious to the health or morals. Under 18: In blast furnaces, dynamos, as telegraph operators, etc.		
Oklahoma..... Sess. Laws, 1909.	Under 14: In any factory, workshop, theater, bowling alley, pool hall, steam laundry, or in any occupation injurious to health or morals or hazardous to life and limb. Under 16: In any especially hazardous occupation.	Under 16: Not more than 8 hours a day, except for agricultural or domestic service. Boys under 16 or girls under 18: Between 6 p. m. and 7 a. m.	Under 16: Age and schooling.
Oregon..... Sess. Laws, 1905.	Under 14: In any factory, store, workshop, mine, the telegraph, telephone, or public messenger service, or in any business during school hours.	Under 16: Not more than 10 hours a day, nor more than 6 days a week, nor between 6 p. m. and 7 a. m.	.....do.....
Pennsylvania.... Sess. Laws, 1909.	Under 14: In mercantile establishments, stores; telegraph, telephone, or other business offices; hotels, restaurants, or in any factory, workshop, rolling mills, bituminous or anthracite coal mines. Under 16: In mercantile establishments, telegraph, telephone, or other business offices, hotels, restaurants, factories, workshops, rolling mills, or hazardous occupations. Under 18: In especially hazardous occupations.	Males under 16 and females under 18: Not more than 10 hours a day (except to make a shorter workday for one day in the week), nor more than 58 hours a week, nor between 9 p. m. and 6 a. m.	Between 14 and 16: Age and schooling.

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
	cate from the school physician.					prisonment not more than 60 days, or both. For every day after notice an employer, $5 to $20. Persons signing any certificate, $25 to $100.
County superintendent.	Last school census, certificate of birth, or the register of city or county, or an affidavit by a physician, or school record, or an affidavit by parent if the child appears to be of proper age.	Read and write simple sentences in English.	In doubtful cases by medical officer of the board of health.	.....	Commissioner of labor.	Any violator, $10 to $50 or imprisonment 10 to 30 days, or both.
Superintendent of schools or, if none, some one authorized by the board of school directors.	Last school census, certificate of birth, or baptism, or other religious record or public register.	Read at sight and write legibly simple sentences in English; school attendance 160 days during the school year previous to arriving at 14 or during the year previous to applying for a school record; instruction in reading, spelling, writing, English grammar, geography, and familiarity with the fundamental operations in arithmetic, including fractions.	.....	.....	Board of inspectors of child labor.	Employer, $10 to $25 for first offense; $25 to $50 for second offense; for third offense, imprisonment 10 to 30 days. Parent, $5 to $25.
Superintendent, or, if none, principal, or secretary of the school board.	Birth certificate or baptismal certificate, passport, or other religious record, school record, affidavit of parent.	Read and write the English language intelligently.	.....	.....	Chief factory inspector.	Any violator, $10 to $25 or 10 days imprisonment, or both.

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Porto Rico..... Sess. Laws, 1913.	Under 14: In any lucrative occupation during school hours, unless child has done the work for admission to the fourth grade of the public rural schools, or has passed the eighth grade of the public graded schools. Boys under 12 and girls under 14: Selling newspapers, candies, or other merchandise in any of the streets or public squares nor working as bootblacks in said places during public-school hours.	Under 16: Not more than 6 hours a day, nor more than 36 hours a week in any establishment, nor more than 8 hours a day, nor more than 48 hours a week in any agricultural estate, nor in any lucrative occupation between 6 p. m. and 6 a. m.	Under 18: Age and schooling.
Rhode Island.... Sess. Laws, 1910; Sess. Laws, 1913.	Under 14: In any factory, manufacturing or business establishment. Under 16: Cleaning machinery while in motion.	Under 16: Between 8 p. m. and 6 a. m. except Saturdays and the four days immediately preceding Christmas.	Under 16: Age and schooling.
South Carolina... Sess. Laws, 1911.	Under 12: In any mine, factory, or textile establishment.	Under 16: Between 8 p. m. and 6 a. m., unless to make up lost time, but not later than 9 p. m.	Sworn statement from parent to employer regarding child's age, if under 14.
South Dakota.... Sess. Laws, 1913.	Under 14: In any factory or workshop, mine, or any mercantile establishment excepting during vacation of public school. Under 16: Any occupation dangerous to life, health, or morals.	Under 16: Not more than 10 hours a day or 60 hours a week; but on Saturday and for 10 days prior to Christmas child may work until 10 p. m.	Under 14: Age and schooling.
Tennessee..... Sess. Laws, 1911; Sess. Laws, 1913.	Under 14: In any mill, factory, workshop, laundry, telegraph, or telephone office, or in the distribution or transmission of merchandise or messages. Under 16: Occupations dangerous to life or limb. Under 18: Messenger for a telegraph or messenger company or deliver goods before 5 a. m. and after 10 p. m.	.....	Sworn statement by parent giving place and date of birth of child.
Texas..... Sess. Laws, 1913.	Under 15: In any manufacturing or other establishment using dangerous machinery, any distillery, brewery, or in the manufacture of goods for immoral purposes, or where the child's health may be impaired or morals debased. Under 17: In any quarry or mine.	.....	.....

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
The alcalde of the municipality.	Public register, baptismal certificate, affidavit of parent. If none of these, affidavit of two honorable persons of the locality.	Prepared for admission to fourth grade of public rural schools or passed eighth grade of public graded schools.	.....	.....	Bureau of labor.	Employer, $25 to $100; for violations after first, $100 to $1,000.
School committee or some person appointed by the committee.	Birth certificate baptismal certificate, passport, or other satisfactory evidence.	Read at sight and write legibly simple sentences in English.	Physical examination by a licensed physician.	.....	Factory inspector.	Any violator, not more than $500.
.....	.....	.....	.....	.....	Commissioner of agriculture, commerce, and industries.	Employer or parent, $10 to $50 or imprisonment for not more than 30 days.
County superintendent.	.....	Read and write simple sentences in English, or a regular attendant at some school, or during the past 12 months has attended school as required by law. If between 14 and 16 and unable to read and write, child must attend school as provided for children between 8 and 14.	.....	.....	Places of employment subject to visitation by the county superintendent.	Any violator, $10 to $100 or imprisonment for not more than 30 days, or both.
.....	.....	.....	.....	.....	.....	Employer or parent, not more than $25.
.....	.....	.....	.....	.....	.....	Employer, $50 to $200; each day constitutes a separate offense.

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Utah..... Sess. Laws, 1911.	Under 14: In manufacture of paints, colors, or white lead; manufacturing, packing, or storing of powder, dynamite, nitroglycerin compounds, fuses, or other explosives; manufacture of goods for immoral purposes; nor in any quarry, any mine, coal breaker, laundry, tobacco warehouse, cigar factory, or other factory where tobacco is manufactured or prepared; distillery, brewery, or any other establishment where malt or alcoholic liquors are manufactured, packed, wrapped, or bottled; theater, concert hall, saloon, or in operating any automobile, motor car, or truck; or the running or management of elevators, lifts, or hoisting machines; or in bowling alleys; or in any other employment declared by the State board of health to be dangerous to lives or limbs, or injurious to the health or morals of children under 14.	Boys under 14 and girls under 16: Not more than 54 hours a week, except domestic service, fruit or vegetable packing, or farm work. Under 21: In cities of first or second class as messengers between 9 p. m. and 5 a. m.	Age and schooling, if 14.
Vermont..... Sch. Laws, 1911; Sess. Laws, 1912.	Under 12: In any mill, factory, quarry, workshop, or in delivering messages. Under 14: In any mill, factory, quarry, or workshop wherein more than 10 persons are employed. Under 16: All employments dangerous to life or limb and injurious to health. In railroading, mining, manufacturing, or quarrying, or in a hotel, bowling alley, or in delivering messages, except during vacation and after school, unless elementary school course has been completed.	Under 16: Not more than 9 hours a day, nor more than 50 hours a week, nor between 8 p. m. and 7 a. m.	Under 16: Age and schooling.
Virginia..... Code of 1910; Sess. Laws, 1912.	Under 14: In any factory, workshop, mercantile establishment, or mine, unless child is 12 years of age and is an orphan, or parents are dependent upon child. Child may work in any factory, workshop, mercantile establishment, mine, or other place owned and operated by parent.	Under 14: Not more than 10 hours a day.	Between 12 and 14: If dependent or if parents are dependent, a certificate to that effect.
Washington..... Sch. Laws, 1909.	Under 14: In any factory, mill, workshop, or store at any time. Under 15: For any purpose during school hours unless child presents a certificate. Under 19: Public messenger in any city of the first class.	.....	Under 15: Age and schooling.
West Virginia.... Sch. Laws, 1911.	Under 14: In any factory, mill, workshop, or manufacturing establishment, or in any business whatever during public school hours, without written permission from the State commissioner of labor or county superintendent.	.....	Age and schooling for children under 16.

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
Superintendent of schools or, if none, by a person authorized by the school board.	School record.	Read and legibly write simple sentences in English and school attendance not less than 100 days the year previous to arriving at the age of 14, or during the year previous to applying for certificate.	.....	.....	Inspectors, truant officers.	Employer or parent, $25 to $200 or imprisoned 10 to 30 days, or both.
Town or union superintendent.	.....	.....	.....	.....	County and municipal courts and justices. Truant officers and all informing officers authorized to make complaint.	Any violator, $5 to $200, and upon a second conviction may be so fined or imprisoned for not more than 6 months.
Circuit court, corporation court of city, judge thereof, mayor, justice of the peace.	.....	.....	.....	.....	Commissioner of labor.	Employer or parent, $25 to $100; any violator of clauses regulating hours of labor, $5 to $20.
Superintendent of schools, or county superintendent.	.....	Reasonable proficiency in branches taught in first eight grades.	.....	.....	Attendance officer makes complaint.	Employer or parent, not more than $25.
Superintendent of schools or, if none, by a person authorized by the local school board.	School record, passport, school census, affidavit.	Read and write legibly simple sentences in English and instruction equivalent to that of the first four grades.	In cases of doubt, a certificate from a medical officer of the board of health or by a physician appointed by the board.	.....	Prosecuting attorney.	Any violator, $10 to $50.

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III. CHILD LABOR.—*Employments prohibited, hours*

States.	Employments prohibited.	Hours of labor.	Certificate required for employment.
Wisconsin.....	Under 14: In any factory, manufacturing establishment or workshop, store, hotel, restaurant, or bakery, mercantile establishment, laundry, telegraph, telephone, or public messenger service, delivery of merchandise or any gainful occupation or employment directly or indirectly. Between 14 and 16: In any factory, or workshop, store, hotel, restaurant, bakery, mercantile establishment, laundry, telegraph, telephone, or public messenger service, or the delivery of any merchandise, or any gainful occupation or employment directly or indirectly without a permit. Under 16: Employments dangerous to life or limb, injurious to the health or depraving to the morals of the child. Under 18: Blast furnaces, running elevators, oiling machinery, etc.	Under 16: Not more than 48 hours a week, nor more than 8 hours a day, or between 6 p. m. and 7 a. m.	Age and schooling, 14–16.
Wyoming..... Compiled Stat., 1910, secs. 3101–5–7.	Boys under 14 or girls of any age: In or about any mine, except for clerical work. Under 14: In public exhibitions; in any immoral place; in any business injurious to health or dangerous to life or limb.	.....	.....

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of labor, certificates, penalties, etc.—Continued.

By whom certificate is issued or approved.	Proof of age required for certificate.	Minimum educational qualifications required for certificate.	Physical examination for certificate.	"Vacation certificate."	Law enforced by whom.	Penalty for violation.
Commissioner of labor, factory inspector, judge of the county or municipal court, judge of juvenile court.	Birth certificate, school record, passport, or such other proof as may be satisfactory.	Read and write simple sentences in the English language, is familiar with the fundamental operations in arithmetic, instructed in spelling, reading, writing, English grammar, and geography, or else has passed the fifth grade and has attended school within 12 months preceding date of certificate.	.....	Child between 12 and 14 may be given a permit for certain employments.	Commissioner of labor, or any factory inspector.	Parent, $5 to $25; employer, $25 to $100, or imprisonment for not more than 30 days.
.....	.....	.....	.....	.....	.....	Employer (in mine), $25 to $100; imprisonment for not more than 6 months may be added. Employer (in immoral or dangerous occupation), not more than $100 or imprisonment 3 months, or both; subsequent offenses, not more than $200, or imprisonment not more than 6 months.

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II. COMPULSORY ATTENDANCE IN FOREIGN COUNTRIES.

By ANNA TOLMAN SMITH,
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INFLUENCES LEADING TO COMPULSORY SCHOOL-ATTENDANCE LAWS.

The original purpose of compulsory school laws was to save nations from the dangers of illiteracy, and further, in Protestant nations, to enable everyone to read the Bible in his native tongue. Child-labor laws were at first distinct from compulsory school laws, but the tendency is everywhere noticeable to bring the two classes of legislation into close relation. The child-labor laws generally precede the compulsory school legislation. The reasons are obvious. The former appeal strongly to the humane instincts of a people, and the sentiment thus aroused overcomes opposition; the latter appear more as matters of expediency, and there are often difficulties in the way of their enforcement, especially in agricultural regions and in pioneer communities. In general, compulsory school laws mark a somewhat more advanced stage of social organization—the stage at which public opinion is easily formed and concentrated upon rational plans looking to the common welfare. In a sense, it may be said that modern society is based upon organized industry, and hence everything that tends to increase the intelligence and efficiency of the great body of the citizens is seen to be essential to its progress. As States pass from the agricultural stage to that of manufactures, requiring large capital and the concentration of labor, child-labor laws are passed, and these are soon followed by compulsory school laws. This process is now going on in the States of southern Europe and in the Russian Empire.

ATTENDANCE LAWS IN ENGLAND.

In England the compulsory principle has been wrought into the education law step by step, and the successive measures which have established it throughout the Kingdom give striking proof of its necessity.

The education act of 1876, which went into effect January 1, 1877, seven years after the passage of the fundamental school law, was the first to declare it the duty of parents to cause their children to obtain "efficient elementary instruction," with penalty for neglect of the

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duty. The same act rendered employers liable to penalty for employing children under 10 years of age, or children above 10 years and not provided with the required certificate of proficiency in reading, writing, and arithmetic, or of previous due attendance at school. (Education Act, 1876, Part I, clauses 4–10.)

The moderate requirements of the act of 1876 have been extended by subsequent legislation, of which the act of 1881 was specially important. This measure required all school districts to make by-laws defining the age limits and other conditions for partial and total exemption from school attendance, and further empowered the Education Department to make such by-laws for all districts neglecting this duty. Subsequent legislation on the subject aimed (1) to fix a minimum standard for exemption from school attendance, below which local by-laws shall not fall; (2) to raise the minimum standard. The act of 1900, the latest dealing with the subject, empowers school-attendance officers to extend their by-laws so as to include children up to the age of 14 years, raises the penalties on parents for violations of the law from 5 to 20 shillings, and increases the number of attendances required for exemption at 13 years of age from 250 to 350 for each of five years previous, and for partial exemption for children between 12 and 14 years of age to 300 attendances. Special provisions are made for the exemption of children between the ages of 11 and 13 years engaged in agriculture, and also for the attendance of half-timers who come under the factory acts applicable to children between the ages of 12 and 13.

The Government itself, it will be seen, has attempted only to fix minimum standards for exemption, which local authorities must meet. The conditions of school attendance as determined by local by-laws throughout the Kingdom, according to the latest report on the subject (1910), were as follows: Of 327 local authorities, all but 7 have fixed the ages of 5 to 14 as the limits of compulsory attendance. The limits in the seven exceptional cases are 5 to 13.

Of the total number of authorities, 87 provide for the exemption of children employed in agriculture, as empowered by the laws. The greater number (47) require examination in the fourth standard or grade for this privilege; 37 require the fifth standard, and 3 the sixth.

The advance in this matter and the close approach to a uniform standard have been brought about by the persistent efforts of liberal-minded statesmen and educational leaders, and, what is more significant, it has been accompanied by a growing disposition on the part of the labor unions to support the effort. The last step in this progressive movement is represented by the bill introduced into Parliament in 1912, providing for the entire Kingdom one uniform condition for exemption from school attendance under 14 years of age, namely, that the child "has attained the age of 13 years," and "is about to

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enter some employment which will, in the opinion of the authority, be beneficial to him." This measure had strong support but failed of passage.

Within the limits of the statutory law compulsory school attendance in England is regulated by the by-laws made by local authorities, and the enforcement of these, as of by-laws in general, is the duty of the local civil authority. In respect to school attendance, the education act of 1876 is explicit on this point (secs. 28–39).

Naturally, teachers and officers of education employ every means in their power to induce and to help parents to obey the law in regard to school attendance. Failing in this effort the case is turned over to the magistrates, who inflict the penalties for truancy, collect the fines, and make commitment orders against parents and others responsible for violations of the law. The federation of education committees in their annual meeting in 1912 urged that this duty should be transferred to the education authorities, on the ground that the magistrates are too lenient or too indifferent in the matter. Statistics were presented showing that some 720,000 children in England and Wales are daily absent from schools. It was also stated in this connection that there are from 50,000 to 60,000 children mentally deficient on the school rolls, and of these only 12,000 are provided for in schools or classes suitable for them. Agriculture was declared to be the only subject from which the children hopelessly deficient derived any lasting benefits.

SCOTLAND.

The education act for Scotland, 1872, made it obligatory upon every parent to secure the instruction of his children between the ages of 5 and 13, or until a certificate of exemption should be secured. The compulsory provision extends to blind children. A subsequent act (1878) fixed the standard (grade) of exemption at the fifth, which pupils should complete at 11 years of age. In 1883 the upper limit of compulsory attendance was raised to 14 years. The enforcement of this act rests upon the magistrates, as in England, and all parents failing in the obligation are subject to prosecution and penalty by fine or imprisonment. The education act of 1908 authorized school boards to make attendance at continuation schools compulsory.

IRELAND.

The education act for Ireland, 1892, included compulsory attendance provisions, in accordance with which children over 6 years of age and under 14, with certain exceptions, are required to attend school for at least 75 sessions in each half year, ending, respectively, the 30th of June and the 31st of December. In its original form the law is extremely vague with reference to the means for its enforcement. This defect was partially remedied by the local government act of 1897, which established county and rural district councils that

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were empowered to take measures for enforcing the school-attendance act. According to the official report for 1912, two-thirds of the pupils enrolled in the schools are in districts in which school-attendance committees have been appointed. In these the percentage of daily average attendance is 74.2 per cent of the enrollment, as compared with 69.5 per cent for the districts not having school-attendance committees.

FRANCE.

The education law of March 28, 1882, making primary education obligatory for all children between the ages of 6 and 13, required the appointment of a local school committee (commission municipale scolaire) in each commune to look after the matter of school attendance. The mayor of the commune, who is the head of the committee, is required to draw up, every year, a list of the children of school age in his commune and publicly to announce the date on which the schools open.

Parents and guardians must notify the mayor of the arrangements they intend to make for the instruction of their children, whether by public or private agencies, and in cases of neglect of this duty the names of the children not reported are inscribed by the mayor on a school list, and the persons responsible are notified of the fact. The mayor also sends to the director of each school a list of the children who should attend the same, and thus a complete record of the school population and the school attendance in each commune is secured. At the end of every month the school director must send to the mayor's office an abstract of the school register, showing the number of absences and the reasons for the same. For neglect of this duty school directors are subject to penalties inflicted by the civil authorities. The school committees may summon delinquent parents before them for warning and censure, but in case of renewed violation of the law the responsible parties are brought before the courts and sentenced to fine or imprisonment.

This system is intended to establish a sort of paternal watch over the children, a purpose which is promoted by the fund (caisse des écoles) that every commune is expected to maintain for the aid of poor children.

In practical operation the machinery for enforcing compulsory school attendance in France has proved valuable as a means of keeping a complete record of the school population, but it has failed to overcome the evils of nonattendance. This fact is fully recognized, and the Chamber of Deputies, in deliberation over a pending bill relative to this subject, has voted to abolish the communal-school committees and to transfer their duties in respect to school attendance to the justice of the peace. The bill has not yet become law.

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SWITZERLAND.

In accordance with the constitution of the Federal Republic, adopted May 29, 1874, every one of the 25 Cantons of Switzerland is required to provide sufficient elementary education free to all children without prejudice to freedom of "faith and conscience." With this restriction, every Canton has entire management of its schools. The obligation imposed by the Federal constitution is enforced in all the Cantons by a compulsory school law and in 17 Cantons the compulsion extends to continuation schools.[1] The duration of the period of compulsory attendance at regular primary schools varies, ranging from six to nine years. The annual term also varies, falling as low as 38 weeks in some Cantons and rising to 44 in others. The length of the school day varies also, and is different for different ages. Thus, although the compulsory principle is rigidly enforced, there is an evident disposition to adapt its provisions to age and other conditions affecting the school attendance of individuals. The following particulars as to the compulsory requirements in two Cantons illustrate prevailing conditions in Switzerland:

Zurich.—Every child in the Canton who attains the age of 6 years before the end of April in a given year must enter school at the beginning of the corresponding school year. The pupils must continue at school for 8 years; that is to say, until the end of the school year in which he completes his fourteenth year of age. The individual communes are authorized to reduce the number of school hours a week in the seventh and eighth classes (that is, the two highest classes) to eight during the summer semester. These hours should be comprised in two forenoons. In such cases the winter semester should comprise at least 23 weeks. The primary school is divided into eight classes, corresponding to the ages of the pupils, each class representing a year. The usual duration of the school year is 43 weeks, beginning with the 1st of May; vacations cover altogether 9 weeks. The number of weekly lessons is from 15 to 20 for children in the first class; 18 to 22 for the second; 20 to 23 for the third; 24 to 30 for the fourth and sixth; and 27 to 33 for the seventh and eighth. No lesson can be given Saturday afternoon, excepting lessons in needlework. The school week, then, is 5½ days. This would give for the year 236½ school days as the maximum, which for the 8 years of the course amounts to 2,092 days. In communes in which the summer attendance for the seventh and eighth classes is reduced to 8 hours, or two half days, the entire school period would be reduced to 1,712 days.

Uri.—In the Canton of Uri a child enters school the year in which his seventh year of age is completed, and he is obliged to attend

[1] See table, p. 83.

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school until his thirteenth year of age is completed; that is, until he has six years of compulsory attendance at the primary school. Following this, he must attend a continuation course for two years. The six years of the primary school comprise a minimum of 30 weeks a year. The length of the school week varies, but on an average is 5 days. This gives 900 days for the 6-year course. To this must be added 120 days for the two years in the continuation school, making a total of 1,020 days.

Local authorities, i. e., school boards, prefects of the district, and municipal authorities, are charged with the enforcement of the compulsory laws; if need be, the superior officers of State intervene. As a rule, however, no endeavor is made by parents to evade the obligation to secure the instruction of their children.

Organization of general continuation schools and of preparatory course for recruits in Switzerland.[1]

Cantons.	Continuation schools.				Recruits, preparatory course.	
	Obligatory or voluntary.[2]	Number of years or winter courses.	Minimum number of hours per course.	Age of pupil.	Obligatory or voluntary.	Number of courses and hours.
Zurich	Voluntary	1–3		Above 15		
Bern	Obligatory	2	60	15–18	Voluntary	
Lucern					Obligatory	2 courses of 4 hours.
Uri	Obligatory	3	40	16–19	.....do.....	1 course of 20 hours.
Schwyz	Voluntary			Above 14	.....do.....	2 courses of 40 hours.
Obwalden					.....do.....	1 course of 40 hours.
Nidwalden					.....do.....	1 course of 90 hours.
Glarus	Voluntary		About 80			
Zug	Obligatory	2	About 60	17–19	Obligatory	3 days.
Fribourg	.....do.....	3	70	16–19	.....do.....	About 20 hours.
Solothurn	.....do.....	3	80	15–18	.....do.....	1 course of 36 hours.
Basel City	Voluntary				Voluntary	
Basel Province	Obligatory	2	About 70	17–18	.....do.....	12 hours.
Schaffhausen	.....do.....	2	About 50	17–18		
Appenzell A. Rh.	.....do.....	2–3	60	16–18		
Appenzell I. Rh.	.....do.....	3	80	15–16	Obligatory	80 hours.
St. Gallen	.....do.....	2–3	80	16–19		
Graubunden	.....do.....	2–3	90	16–18		
Aargau	.....do.....	3	80	16–19		
Thurgau	.....do.....	3	50–60	15–18		
Ticino	.....do.....	3–4	60	15–18	Obligatory	12 days of 4 hours.
Vaudt	.....do.....	3–4	60	15–19	.....do.....	24 hours.
Wallis	.....do.....	4	120	15–19	.....do.....	50 hours.
Neuenberg	.....do.....	2	64	17–18	.....do.....	24 hours.
Geneva	Voluntary				.....do.....	36 hours.

[1] Guex, François, annuaire de l'instruction publique en Suisse, 1910, p. 227.
[2] The obligation is imposed upon boys only, excepting in the canton of St. Gallen.

ACTION OF LOCAL COMMITTEES IN OTHER COUNTRIES.

In the *Scandinavian* countries the matter of school attendance is under the close surveillance of the local school boards and the diocesan boards. These bodies summon the delinquent parents before them for investigation and warning; cases of contumacy are reported to the central authorities, but it is seldom necessary to resort to these extreme measures. It should be noted that in all Lutheran

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countries the pastors are members of the local school committees and the ecclesiastical authorities are included in the central administration of school affairs; clerical influences in fact have even greater effect than the law in preventing neglect of school attendance.

Italy.—The education law of 1877 provided for the formation of local school attendance committees, similar to those of France; but in the past this law was seldom carried into effect. The success of more recent legislation on the subject will depend necessarily upon the supply of school buildings, for which special appropriations have been made.

The Netherlands.—The agents for enforcing the compulsory law in the Netherlands, as in France, are local committees; but in the latter country these committees are made up from the communal and cantonal authorities; in the Netherlands the local clergy, the parents, and the teaching corps are all represented in the committees, the members of which are appointed by the communal councils. Infringements of the law are brought to the attention of the school inspectors, and parents or guardians who persist in its willful neglect are summoned before the district judge, who takes final action in the matter.

Japan is the only country of Asia having a compulsory school attendance law. Children are admitted to school at 6 years of age and may continue till 14. The obligatory period covers the ages 6 to 12 by ordinance of 1908. The Government appears to have been influenced by the example of France in respect to the means for enforcing the law.

The mayors make out the register of the school children in their respective districts, which is furnished to the school directors. If a child fails to report when the school opens, notice is sent to the parent or guardian, and if the absence continues, at the end of seven days the case is reported to the mayor, who summons the responsible party for further inquiry. If the neglect still continues, the matter is referred to the prefect of the district, who can pronounce sentence upon the guilty person. As a rule it is not necessary to resort to this extreme measure.

In the countries here grouped care is taken to exercise paternal watchfulness over the children, and to excite the willing cooperation of parents in the public effort for the child's welfare. In other words, the paternal spirit prevails over the penal in the course pursued.

RESULTS OF COMPULSION.

Illiteracy is generally taken as a measure of the efficiency of a school system, but in this respect it must be considered with conditions which affect materially the enforcement of school laws,

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including that of compulsory attendance. Chief among these conditions are the extent, racial character, and density of the population. Comparison of great nations with small nations in respect to education carries little weight; for example, Denmark, with its compact population of two and one-half millions, would be able to maintain school attendance even without a compulsory law; there is evidently no basis of comparison between such a country and an empire like Russia, with a population in the European division of 135,860,000, and a density of only 68 per square mile. Under all conditions, however, a compulsory school law properly enforced has proved to be an effective means for eliminating illiteracy. The following statistics, which bring into comparison selected countries of Europe in respect to school attendance and illiteracy according to the latest official information, are convincing on this point. For more effective presentation, the countries are arranged in two groups in the table pertaining to illiteracy; the first group comprises the States of Europe in which the percentage of illiteracy on the basis considered falls below 10 per cent, and the second group States in which it is in excess of this ratio.

Population and enrollment in elementary schools in certain European countries.

Countries.	Population.	Ratio of enrollment in elementary schools to population.	
		Year.	Per cent.
Austria-Hungary:			
Austria	28,567,896	1909	15.60
Hungary (including Croatia and Slavonia)	20,840,678	1910	14.00
Belgium	7,423,784	1910	12.50
Denmark	2,775,076	1910	13.57
France	39,601,509	1910	14.24
German Empire	64,903,423	1910	16.00
Great Britain	40,834,714	1911	16.87
Italy	34,289,764	1908	8.75
Netherlands	5,945,155	1911	15.42
Spain	19,588,685	1910	10.40
Sweden	5,521,943	1910	14.31
Switzerland	3,741,971	1910	14.38
Russia	163,778,000	1910	2.56

Illiteracy in certain countries, grouped according to percentages.

GROUP I.—COUNTRIES HAVING FEW ILLITERATES.

Countries.	Year.	Per cent of illiterates.	Basis of estimate.
Denmark	1907	0.2	Army recruits.
France	1910	2.97	Do.
Great Britain	1904	1.5	Marriage register.
German Empire	1905	.03	Army recruits.
Netherlands	1908	1.4	Do.
Sweden	1907	.3	Do.
Switzerland	1905	.5	Do.

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Illiteracy in certain countries, grouped according to percentage—Continued.

GROUP II.—COUNTRIES HAVING LARGE PROPORTION OF ILLITERATES.

Countries.	Year.	Per cent of illiterates.	Basis of estimate.
Austria[1]	1900	26.2	Population above 10 years of age.
Hungary[2]	1900	40.0	Do.
Belgium[3]	1900	18.6	Do.
Italy[1]	1901	48.0	Do.
Spain[1]	1900	58.7	Do.
Russia[3]	1897	70.0	Do.

[1] Compulsory law not well enforced.
[2] Including Croatia and Slavonia, in which compulsory law is not enforced.
[3] No compulsory school attendance law.

The benefits of a compulsory law are also illustrated by the decrease of illiteracy even in countries where the full enforcement of the law is not yet possible. This is strikingly shown in the case of Italy. In this Kingdom a compulsory attendance clause was included in the education law of 1877, but it remained for many years a dead letter. In 1904 a law was passed greatly strengthening the compulsory provisions. As a result of the earnest efforts made to carry this law into effect, the ratio of illiteracy, which in 1901 was 42.5 per cent for males above 6 years of age, was greatly reduced. In 1905 only 30.6 per cent of the recruits were illiterate, and those from several districts (circondari) were all able to read and write.

Roumania has a compulsory school law dating from 1896, and to its enforcement is attributed the marked decrease in the ratio of illiterates, which fell from 78 per cent, as shown by the census of 1899, to 60.6 per cent in 1909. For the rural population only, the decrease was from 84.8 per cent to 66.3 per cent.

In respect to countries in which there is practically no illiteracy it must be admitted that there are other causes conducing to this result. Chief among these is the military system, which obliges all men to serve for a period in the army, and on entering the service to pass an examination in the elementary studies. Those who fail in this test must attend special classes or schools for recruits.

The passage in 1900 of a compulsory school law for the Netherlands is a very significant fact in the progress of the principle. On account of the various agencies carrying on primary education, their equal recognition before the law, and the reluctance to rouse denominational antipathies, the compulsory provisions included in previous education bills had been dropped. School attendance, however, has been promoted in the Netherlands by prizes and rewards offered by local school committees, and by the examination in elementary subjects required for admission to the numerous subsidized trade and industrial schools. Therefore, without compulsion, school attendance has

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been high in this small Kingdom and the percentage of illiteracy low; nevertheless the general concurrence of opinion finally carried a compulsory provision in the school law. Undoubtedly the census of 1889 conduced to this result. The enumeration showed 1.4 per cent of illiterates in the number of army recruits in the Netherlands, which was contrasted with the conditions in Denmark and Germany, from which countries illiteracy has been practically eliminated. It is noticeable that statistics for the Netherlands, based upon the census of 1909, show a reduction in the ratio of illiterate recruits from 1.4 to 1 per cent.

Among other evidences of the importance of compulsory school attendance laws is the movement for extending the compulsion to continuation schools. The subject is agitated at the present time in all the principal countries, although comparatively few have yet taken positive action in this matter. In Switzerland attendance upon continuation schools is compulsory in 17 out of 25 cantons.

Five States of the German Empire have extended the compulsory provisions, either wholly or partially, to continuation schools. Wurttemberg makes attendance at continuation schools compulsory for boys aged 14 to 18, and for girls aged 14 to 15 (law of Aug. 17, 1909); in Baden attendance upon continuation schools is compulsory for boys for two years, for girls one year; in Saxony such attendance is compulsory for boys; Bavaria, by school regulations of June 4, 1903, requires attendance at a Sunday school to the completion of the sixteenth year, or attendance at vocational school may be substituted.

The Scotch education act of 1908 authorized the school boards to make attendance upon continuation schools compulsory.

Ontario, by law of 1912, authorized local authorities to make attendance at continuation schools compulsory.

Compulsory school laws carry with them the sense of additional responsibility on the part of the public for the welfare of children; hence, in their train follow provisions for supplying the pressing wants of the poorest children and of ministering to their physical ailments; there follows also discrimination as to the moral responsibility of juvenile offenders; hence, juvenile courts and reform schools conducted on humane and rational principles grow naturally out of the endeavor to provide for the instruction of every child.

TABULAR VIEW OF ATTENDANCE LAWS IN FOREIGN COUNTRIES.

The following table (p. 91) comprises the foreign countries in which a compulsory school attendance law is well established, and the principle of compulsion supported by custom and opinion. The presentation gives in epitome the general conditions covered by all laws on the subject, and also the particulars in which they vary most.

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In foreign countries the compulsory period begins, as a rule, at an earlier age than in the United States. The tendency to postpone school attendance in the United States is due to different causes; in several States this course is necessary on account of the sparse population and the poor roads; in more densely populated regions there is a willingness to prolong the period of the free activity of childhood; in European countries, on the contrary, there is a disposition to hasten the entrance of children into industrial life.

In all the countries included in the table, allowance is made for absence on account of sickness, the want of an accessible school, and other circumstances which are beyond the control of parents. There are, however, additional causes for exemption from school attendance, arising from conditions special to the respective countries, which are named in the laws. Such causes are indicated in a measure in the table (col. 5).

In order to complete the survey with respect to compulsory attendance upon the ordinary primary schools, reference should be made to countries in which legislation on the subject is of very recent date or, if of long standing, has recently been the subject of new and more stringent provisions.

Russia.—The subject of universal popular education in the Russian Empire engaged the attention of the first and of the second Duma, but without definite results. The third Duma proceeded upon the principle that the necessary conditions must be supplied by a better organization and more liberal support of the existing schools, and by systematic provision for increasing the number of schools up to the full requirement of the vast population of the Empire. In accordance with this purpose a measure was adopted by the third Duma providing for an annual appropriation for the successive years 1909 to 1912, inclusive, to form a fund for supplementing local appropriations for school buildings. The appropriation demanded for the four years would amount to 25,000,000 rubles ($12,875,000). The leaders of the legislative body favor the adoption of a compulsory law as soon as the supply of school accommodation makes its enforcement possible. The recommendations of the Duma on the subject, however, were not approved by the imperial council.

In Finland and in the Baltic Provinces of Russia, in accordance with the prevailing custom in Lutheran countries, the parish clergy are required to see that the children of their charge are instructed in the elements of reading and writing, and in the catechism, as a prerequisite to confirmation. By the Finnish school law of 1866 the civil authorities were made responsible for secular education, and towns were required to establish schools for the elementary education of all children within their limits; the law provided for the election of local school committees who are charged with its enforcement.

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The town schools are of two classes: Lower primary, or infant schools, and primary schools proper. The elementary secular instruction, which was formerly under the direction of the clergy, is now given in the infant schools, together with religious instruction, but children who receive this elementary instruction at home are not obliged to attend the infant school. The course of the regular primary school covers four years and is compulsory for all children, ages 9 to 12 (or 10 to 13, inclusive), who are not otherwise instructed. If continuation or repetition classes exist, attendance may be required in those for a year after the primary school period. By an ordinance of 1898 the obligation to establish schools was extended to the rural communes.

In the three Baltic Provinces of Russia—Esthonia, Livonia, and Courland—elementary education is compulsory in accordance with the ecclesiastical requirements.

Southern Europe.—The recent political movements in southern Europe have been marked by new educational demands, and the compulsory principle is securing recognition in all the countries that may properly be included in a discussion of this section of the continent.

In the kingdoms occupying the three southern peninsulas of Europe, primary education is compulsory under existing laws, and notwithstanding the many obstacles to the enforcement of this principle, it has been carried into practical effect in many of the chief cities. Current discussions of education in these countries emphasize the importance of more stringent measures for insuring the elementary education of all the people. In Italy a compulsory provision applicable to children 6 to 9 years of age was comprised in the education law of 1877; by a law of 1904 the upper limit was extended to 12 years of age in communities maintaining a higher primary school.

The kingdoms that were formerly parts of Turkey in Europe, namely, Bulgaria, Montenegro, Roumania, and Servia, have all declared primary education compulsory, either by constitutional provision or by law. The enforcement of the provision has been hindered by internal disturbances and by the want of sufficient school accommodation; the war with Turkey has prevented present progress in education and in internal improvements in the nations involved in the conflict.

Empire of Turkey.—The law of 1869 regulating public instruction in the Turkish Empire declared education obligatory for boys from 6 to 11 years of age, inclusive; for girls from 6 to 10. The exemptions were numerous and the law has seldom been enforced.

Since the Young Turk party came into power, education has been a subject of earnest consideration by the Government, and an education bill which reaffirms the principle of compulsion was presented

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to the legislature in 1910 by the minister of public instruction. The measure was still pending when the war broke out.

In the Latin States of North and South America compulsory provisions are a feature of the school laws, but little progress has been made in their enforcement. At the present time the matter is one of serious consideration in several of these countries, particularly in Peru, Chile, Argentina, and Uruguay, which are attempting the reorganization of their educational systems. As industrial and civil conditions improve, the apathy of the people diminishes, a change which is shown by the recent rapid growth of a diffused public-school sentiment in Argentina and Uruguay.

The significant omissions from the list of countries having compulsory school attendance laws are Belgium, Quebec, and Manitoba.

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Countries.	Date of present law.	Age limits.[1]	Annual period.	Attendance required.	Penalty.
1	2	3	4	5	6
CENTRAL EUROPE.					
Austria-Hungary:					
Austria	1869	6–14		Until scholar has acquired prescribed subjects, religion and reading, writing and arithmetic tested by examination for certificate.	$3.50 (maximum) or imprisonment up to 2 days.
Hungary	1868	6–12 (12–15)	8 months, country; 10 months, town.	Six years, day school. Continuation or revision school; evening or Sundays at stated times.	First offense, warning; second, reprimand; subsequent, fine from 35 cents to $1.50.
France	1882	6–13	Full term	Exempt, if certificate of primary studies is obtained; examination for this open to children 11 years of age.	First and second offense, warning; subsequent, fine $3 (maximum) and imprisonment 5 days.
German Empire (typical States):					
Bavaria		6–13 (13–16 secular Sunday schools).		Until scholar has acquired prescribed subjects and passed test examinations.	
Prussia		6–14		Eight years	Each offense 70 cents (maximum) or imprisonment up to 3 days.
Saxony	1873	7–14 (and 14 – 17 boys only).		Exempt after 7 years if prescribed standard is reached.	
Wurttemberg	1836, 1877, 1895.	7–14 (14–18 boys, 14 – 16 girls).	Every school day		Fine or imprisonment.
Luxemburg (grand duchy)		7–13			
Netherlands	1900	6–12 or 7–13.		Exempt at 12 years of age if 6 consecutive years have been passed in primary schools.	
Switzerland (typical cantons):					
Berne	1870	6–15 (15–18)	Five-sixths of possible attendance.	Exemption on completion of 8 years' course, if examination is satisfactory.	Fines and imprisonment.
Geneva	1886	7–13	40 weeks, 24 hours each.		Do.
Grissons	1853, 1859	7–15	30 hours every school week.		Do.

[1] The age limits in this column cover the age period in each country, during which the compulsory law may be enforced; from column 5 it will be seen that in many cases exemptions are allowed between the age limits; the age limits in parentheses relate to continuation schools.

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Compulsory education in foreign countries—Continued.

Countries.	Date of present law.	Age limits.	Annual period.	Attendance required.	Penalty.
1	2	3	4	5	6
CENTRAL EUROPE -continued.					
Switzerland (typical cantons)—Continued.					
Neuchatel	1872	6-14			Fine, 40 cents (minimum), or imprisonment 30 days (maximum).
Tessin	1882	6-14 (15-18)	28 hours a week for 6 to 9 months.		Each offense 2 to 3 cents and 4 hours' imprisonment.
Vand	1865	6½ - 14½ (15-19).	33 hours every school week.		Warnings; subsequently, fines, 60 cents to $3.
Zurich	1859	6-14	Full time		Penalties for 10 absences.
NORTHWESTERN EUROPE.					
Great Britain and Ireland:					
England	1900	5-14	Full term, unless by special arrangement.		Determined by local laws.
Scotland	1872	5-13	Option of local authorities.		Fine, $5 (maximum), or imprisonment 14 days.
Ireland	1892	6-14	do		
SCANDINAVIAN COUNTRIES.					
Denmark	1904	7-14	Determined by local authorities.		Fines and imprisonment.
Norway	1889	7-14			First offense, warning; subsequent, fines 1 to 25 kroner ($0.26⅘ to $6.70).
Sweden	1882, 1897	7-14	34½ weeks		
ASIA.					
Japan	Ordinance 1907.	6-12			
AUSTRALASIA.					
Australia:					
New South Wales	1880	6-14	70 days each half year.		Fine, 5 shillings ($1.20) to 20 shillings ($4.80); or imprisonment 7 days.
Queensland	1875	6-12	60 days in each half year.		
South Australia	1875, 1891	7-13	35 school days per quarter.		Fine, $1.25 to $55.

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Tasmania	1885, 1896	7-13.	3 days a week	Exempt at 11 years of age, if able to pass required examination.	
Victoria	1872.	6-14.	40 days each quarter.	12 years of age, if able to pass examination.	Fine, 5 shillings ($1.20) to 20 shillings ($4.80).
West Australia	1899, 1907	6-14.	Every school day		Do.
New Zealand	1877, 1901	7-14.	From two-thirds to four-fifths total number of sessions.		Fine, 5 shillings ($1.20) to 40 shillings ($9).
NORTH AMERICA.					
Canada:					
Alberta		7-12 [1]			
British Columbia	1891, 1901	7-12 [1]	Six months		Fines, first offense, $5; subsequent, each, $10.
New Brunswick	1906	7-12.		In towns, 12 years of age and examination in work or grade 7; above 13, without examination, if necessary.	
Northwest Territories		7-12 [1]			
Nova Scotia	1895, 1900	7-12.	120 full days		Fines.
Ontario	1891	8-14.	Full term		Do.
Prince Edward Island	1887	8-13.			
Saskatchewan		7-12 [1]			

[1] Inclusive.

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III. COMPULSORY EDUCATION IN GERMANY.

By W. Carson Ryan, Jr.,
Editorial Division, Bureau of Education.

The successful enforcement of compulsory education has long been an enviable feature of the German school system. Although the ages and periods of attendance vary, there are practically no children in the German Empire who evade the laws. The occasional exceptions are in the case of families of strolling actors, acrobats, etc., and the shifting population engaged in river navigation. Some of the figures will show the almost perfect conditions: Out of 5,754,728 children of school age in Prussia in 1901, only 548 evaded attendance. In 1895 the evasions were 487 out of 5,317,037 children. Both of these figures represent a betterment since 1871, when there were 20,783 evasions out of a school population of 4,464,906. Although Purssian conditions are better standardized than those in other parts of the empire, and it is important not to consider Prussia as Germany, the following table of Prussian school enrollment, as compared with population, will serve to indicate the consistency with which the record of schooling is maintained.

Table showing ratio of public elementary-school children to total population in Prussia since 1822.

Year.	Children in school.	Population.	Per cent.
1822	1,427,045	11,664,133	12.2
1825	1,577,999	12,256,725	12.9
1828	1,791,703	12,726,110	14.8
1831	1,917,934	13,038,960	14.7
1834	2,102,271	13,507,999	15.6
1837	2,169,247	14,098,125	15.4
1840	2,224,239	14,928,501	14.9
1843	2,328,146	15,471,064	15.0
1846	2,433,333	16,112,938	15.1
1849	2,453,062	16,331,187	15.2
1852	2,583,565	16,935,420	15.2
1855	2,615,382	17,202,331	15.2
1858	2,719,072	17,739,913	15.3
1861	2,778,208	18,491,220	15.0
1864	2,825,322	19,255,139	14.7
1867	3,035,275	19,672,237	15.4
1871	3,900,655	24,639,706	15.8
1878	4,200,160	26,664,427	15.8
1882	4,339,729	27,694,354	15.7
1886	4,538,247	28,645,332	16.9
1891	4,916,476	29,955,351	16.4
1896	5,236,826	31,855,123	16.4
1901	5,670,870	34,472,509	16.5
1911	6,572,140	40,165,119	16.4

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Figures of a number of German municipalities for 1910 reveal how consistently the ideal in attendance is carried out to the very end of the system. In certain cities having an eight-year course the percentage of children finishing the eighth grade was as follows: Wiesbaden, 99.46; Frankfort on the Main, 99.2; Flensburg, 99.77; Leipzig, 99.58; Dresden, 99.67; Zwickau, 99.93; Plauen, 98.91; Chemnitz, 99.62; Mainz, 99.4; Bremen, 98.62. These cities are above the normal, to be sure, yet that so many communities can show such a record is sufficiently noteworthy.

The agencies in this admirable enforcement of compulsory education may be summed up as follows: (1) Strict compulsory laws long on the statute books; (2) an imperial child-labor law which is enforced; (3) a thorough system of official inspection by school, church, and civil authorities; (4) careful registration methods, which make sure that the child is not lost sight of in a change of residence.

(1) *Legislation.*—Compulsory education laws have been on the statute books in German countries for considerably more than a century. They go back at least to Friedrich Wilhelm I of Prussia (Sept. 28, 1717):

Hereafter in those places where schools exist the parents are required on pain of heavy punishment.....to send their children to school every day in winter; and in summer, when the children are needed for farm work, at least once or twice a week, in order that they may not entirely forget what they have learned during the winter.

The principle is more definitely enunciated in Frederick the Great's general law of 1763:

First of all, we decree that all our subjects, whether parents, guardians, or employers, upon whom the education of youth devolves, shall send to school their own children, boys and girls, as well as those intrusted to their care, not later than the fifth year, in order that they may continue there into their thirteenth and fourteenth year; and they shall keep them at school until they have not only obtained the essentials of Christianity and know how to read and write readily but can also make satisfactory answer with regard to those matters which are taught them in reading books ordained and approved by our consistories.

The general law of 1794 provides:

Section 43. Every inhabitant who can not or will not provide the necessary instruction for his children in his own household is required to send them to school after the completion of the fifth year.

Sec. 46. The school instruction must be continued until a child, in the discretion of his spiritual guide, has obtained the knowledge necessary for an intelligent person of his station in life.

The Code of 1850 declares: "Parents and their representatives shall not leave their children or wards without the instruction which is prescribed for the public schools."

Compulsory education is also covered by legislation of 1872, 1878, and 1891. The 1872 law changes "spiritual guide" in the law to "school inspector." The 1891 law says: "The compulsory educa-

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tion period of a child ends with the close of the child's completed fourteenth year."

The enforcement of the law is left to the police authorities. In case of infraction the school inspector invokes the aid of the police, and legal proceedings are instituted against the parents, who are at first fined, and in case of repeated offense may be imprisoned, usually for eight days.

In Saxony the punishment provided by law for nonattendance is a fine, or imprisonment from one day to six weeks; but the testimony is that legal proceedings are seldom undertaken.

In Bavaria there is no compulsory education law; the subject is covered by regulations.

In Wurttemberg parents who fail to send their children to school regularly are first warned, then fined, and, if need be, imprisoned.

As in most countries, the laws allow certain exemptions. Entrance into school at the lower age may be deferred in the case of illness or constitutional weakness, especially where the distance from school is considerable, and at the other end of the compulsory period likewise children may for sound reasons be freed from the action of the law. In the year 1901 of all children of school age in Prussia 10,672 were unable to attend on account of mental or bodily defects; 16,109 could not be received immediately after the completion of the sixth year; and 53,794 were released from attendance before the end of their fourteenth year.

Education of the deaf and dumb is not compulsory in most of the German States. In Prussia it is compulsory in only one Province, Schleswig-Holstein.

The question of compulsory or optional attendance in continuation schools has heretofore been left to the respective municipalities.[1] The Prussian State Government, however, by conditioning its annual appropriations upon the establishment of compulsory attendance, has succeeded in inducing most of the communities to make the attendance compulsory. In 1910 Prussia had 1,818 industrial continuation schools (gewerbliche Fortbildungsschulen), with 321,226 students; 59 association schools (Vereinsschulen), with 5,831 students; and 285 guild schools (Innungsschulen), with 11,952 students. Of the industrial continuation schools, 1,749 (including 61 work schools) had compulsory attendance and 69 optional attendance. In the 59 association schools, which are maintained by apprentices, mechanics, manufacturers, etc., the attendance is optional.

After agitation for a number of years a draft of a national law has recently been submitted to the Prussian Landtag, or Legislature,

[1] This and the following paragraph are taken from a statement by Ralph C. Busser, United States consul at Erfurt. See Bulletin, 1913, No. 54, U. S. Bu. of Ed., p. 15.

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which makes three years' attendance at an industrial or commercial continuation school obligatory on the part of all boys under 18 years of age who are employed in industrial or commercial work in the particular community. The boys usually finish in the common schools at the age of 14 or 15, and, according to the new State law, their compulsory attendance at the continuation school will continue for three years or until the end of their apprenticeship, but not beyond the eighteenth year. It is also provided in this new law that one can be released by the school authorities from the obligation to attend the public industrial continuation school by attendance during the required legal period and for an equal number of hours at a guild or other continuation school or trade school, provided that the instruction at such school has been recognized by the president of the respective government district (Regierungs-Präsident) as an adequate substitute.

(2) *Child-labor law.*—The imperial child-labor law of 1869 forbade without exception the employment of children under 12 years of age, and its rigorous enforcement has aided materially in carrying out compulsory education laws.

(3) *Inspection.*—Church and civil authorities cooperate in the work of insuring attendance. The local school authorities have their own regulations whereby they take action to compel attendance. In Prussia and in most other parts of the German Empire, however, the almost perfect attendance is largely due to the pastors, who are especially authorized to see that the children go to school.

(4) *Registration methods.*—Prussia early took the lead in instituting careful registration methods and in the compilation of dependable school statistics—the first steps in educational progress; and the other German States have in the main followed Prussia's example. Thus, although educational administration is not under centralized imperial control, there is practical unanimity in enrollment and registration methods throughout the German Empire.

The work of the direct agencies thus outlined is made effective by the following facts of German civilization which need always to be borne in mind in considering compulsory education in Germany: Relative density of population, allowing stricter surveillance than in less thickly settled countries; a people more nearly homogeneous than that of the United States; an innate love of education produced by generations of men with cultural ideas, apt to be lacking in a new nation where action and personality tend to be treasured above bookish attainments; strongly centralized government, which makes of the school a system in a sense in which ours seldom is; close interrelation of church and state in public education, involving vigilance on the part of both agencies to see that the child is in school; and,

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above all, a strongly developed public sentiment on the subject of school attendance which makes truancy practically impossible.

The effects of successful compulsory education show themselves in a number of ways not easily susceptible of statistical analysis. Vanishing illiteracy is one indication that can be measured; 1910 figures give the German Empire the lowest illiteracy record among the nations—3 in 10,000.

But it is not merely in the external phenomena of literacy or illiteracy that long-continued compulsory education shows its effects—the disciplinary value to the national mind of generation after generation of educated citizens is incalculable.

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IV. THE NEED OF COMPULSORY EDUCATION IN THE SOUTH.

By WILLIAM H. HAND,
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Thirty-nine States of the Union have State-wide compulsory school-attendance laws of varying degrees of compulsion and enforcement. The remaining nine States all belong to the Southern group. Four of the Southern States, viz, Maryland, Tennessee, Arkansas, and Louisiana, have laws making attendance compulsory in parts of these States. These laws are generally known as local-option laws. Of the laws of these four States, perhaps that of Arkansas actually reaches the greatest number of children; in none of the four has compulsory attendance been in force long enough to make any marked decrease in the State's illiteracy. South Carolina, Georgia, Florida, Alabama, Mississippi, and Texas are yet without any kind of compulsory-attendance law.

Many people are still debating in a purely academic way the need, the wisdom, and the feasibility of something which has been tested and accepted by the majority of peoples speaking English, German, and French. Nevertheless, the mere fact that other sections of the Union and other countries have enacted such laws is of itself not conclusive evidence that the Southern States should enact them. Any logical argument for or against compulsory attendance must be based on conditions as they actually exist.

Confining the study to the native white population of native parentage, the following tables show the conditions in the Southern States, and the relative illiteracy in the South and other parts of the United States and in four foreign countries. The figures for the United States are from the Census Report of 1910. These figures are not the guesswork of some partisan statistician, but the cold facts given to the census taker by the fathers and mothers of the children.

EXHIBIT A.—*Native white illiterates 10 years of age and over.*

	Per ct.
New England States—6 (all under compulsory laws)	0.7
Middle Atlantic—3 (all under compulsory laws)	1.2
East North Central—5 (all under compulsory laws)	1.7
West North Central—7 (all under compulsory laws)	1.7
South Atlantic—9 (3 without compulsory laws; 3 with local option)	8.0
East South Central—4 (2 without compulsory laws; 1 with local option)	9.6
West South Central—4 (1 without compulsory laws; 2 with local option)	5.6
Mountain—6 (all under compulsory laws)	3.6
Pacific—3 (both under compulsory laws)	0.4

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EXHIBIT B.—*Native white illiterate males of voting age.*

	Per ct.
New England States	1.0
Middle Atlantic	1.5
East North Central	2.3
West North Central	2.3
South Atlantic	9.0
East South Central	11.1
West South Central	6.0
Mountain	2.8
Pacific	0.5
France, male adults	4.7
England, male and female adults	3.0
Scotland, male and female adults	2.4
German Empire, male adults	0.5

EXHIBIT C.—*Showing rank of the 12 States without State-wide compulsory laws in percentage of illiteracy of native whites 10 years of age and over.*

States.	1910	1900
Maryland	32d.	32d.
Texas	33d.	35th.
Florida	37th.	38th.
Mississippi	38th.	37th.
Arkansas	40th.	41st.
Georgia	41st.	42d.
Virginia[1]	42d.	40th.
Tennessee	43d.	46th.
Alabama	44th.	47th.
South Carolina	45th.	44th.
North Carolina[1]	47th.	49th.
Louisiana	48th.	48th.

[1] Virginia and North Carolina passed their State-wide compulsory laws after the census of 1910.

In Exhibit D following are first shown the six States without compulsory-attendance laws. Next are shown the six States with local-option compulsory laws. Massachusetts, Rhode Island, and Connecticut are taken as representative of New England, each with a compulsory-attendance law enacted years ago and requiring long terms of attendance enforced by rather heavy penalties. Wisconsin and Minnesota are taken as a type of the newer West, with a compulsory attendance rather rigidly enforced. West Virginia and Kentucky are taken as specimens of recent compulsory-attendance laws at first mild in form and not very rigidly enforced.

EXHIBIT D.—*Native white illiterates 10 years of age and over.*

States.	Illiterates.	Per cent.
South Carolina	50,112	10.5
Georgia	79,875	8.0
Florida	14,331	5.2
Alabama	84,204	10.1
Mississippi	28,344	5.3
Texas	60,881	3.3
Maryland	17,464	3.0
Virginia	81,105	8.2
North Carolina	131,992	12.3
Tennessee	120,384	9.9
Arkansas	54,221	7.1
Louisiana	82,100	15.0

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EXHIBIT D.—*Native white illiterates 10 years of age and over*—Continued.

States.	Illiterates.	Per cent.
Massachusetts	3,428	0.4
Rhode Island	944	.7
Connecticut	1,707	.5
Wisconsin	3,223	.6
Minnesota	1,536	.4
West Virginia	50,580	6.7
Kentucky	145,156	10.7

EXHIBIT E.—*Native white male illiterates of voting age.*

States.	Illiterates in 1900.	Illiterates in 1910.	Per cent in 1910.
South Carolina	15,643	17,535	11.0
Georgia	31,914	29,936	8.9
Florida	5,470	5,026	5.1
Alabama	30,680	30,389	10.9
Mississippi	11,613	11,129	6.1
Texas	24,180	23,642	3.7
Maryland	10,191	8,097	4.0
Virginia	35,057	33,488	9.9
North Carolina	54,208	49,619	14.1
Tennessee	51,247	47,479	11.5
Arkansas	22,546	20,343	7.7
Louisiana	24,681	28,091	15.6
Massachusetts	1,927	1,700	.5
Rhode Island	550	466	1.0
Connecticut	1,040	893	.7
Wisconsin	1,754	1,514	1.0
Minnesota	737	732	.5
West Virginia	23,024	20,666	7.8
Kentucky	62,182	59,314	12.8

These figures can have but one meaning—that compulsory education reduces illiteracy and that the South sorely needs to have hers reduced. In a monarchy the primary object in educating its citizens has been to make good, intelligent, loyal subjects. In a democracy, such as ours, the primary object in educating the people is to make good, intelligent, loyal, and prosperous citizen-sovereigns. Admittedly we are making "the most stupendous experiment in Government" that the world has ever seen. We are taking our native-born stock and fusing with them foreigners from all quarters of the globe. We are making of practically every one of these an American citizen, clothing each with the power to make and to administer the laws of a great nation and to direct and control all the forces and resources of our institutional life. To meet successfully such tremendous responsibilities requires intelligence and training of the highest constructive order.

If our Government is to achieve and maintain that eminence among the powers of the earth to which we pledge our faith, it must secure for itself an intelligent, efficient, and orderly citizenship. Intelligence and efficiency lie at the very foundation of any people's greatness. Intelligent and efficient citizens are a State's fundamental

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asset, and the State which has the largest percentage of illiteracy has the smallest percentage of effective citizens. Ambassador Bryce has repeatedly emphasized the fact that America has put unlimited power into the hands of the people, and if the people are to enjoy that power without abusing it they must be educated; or, as a recent writer expresses it, "If the people are to govern, they must know how to govern." By the people is meant all the people. The South could once boast of an administrative aristocracy capable and highly trained—in the language of Henry W. Grady, "almost feudal in its grandeur." The conditions conducive to such a society have been swept away, and the South to-day is preeminently the land where training and fitness of the masses are indispensable. It must educate all.

No sound-thinking man would for a moment contend that education, in the common acceptation of that word, is a panacea for political and social ills, nor would he claim that an illiterate man is necessarily not a good citizen. But in a democracy where manhood suffrage practically prevails institutional life is exposed to tremendous dangers when in 12 States 304,774 (Exhibit E) native white males of voting age, or 10 per cent of the white voting population, are unable to read the names printed on the ballots they are supposed to cast intelligently for the government of the State. Please note the insignificantly small decennial decrease in native white male illiterates of the voting age in Alabama and Mississippi, while in South Carolina and Louisiana there is a material increase.

The revelations of the Thirteenth Census are highly gratifying in the main. The decrease in illiteracy in the Southern States, as in the entire Union, between 1900 and 1910 is highly encouraging. The following exhibit as a whole is at once one of victory and of promise:

EXHIBIT F.—*Showing the actual decrease of native white illiterates 10 years of age and over, between 1900 and 1910.*

States.	In 1900.	In 1910.	Decrease.
South Carolina	54,177	50,112	4,065
Georgia	99,948	79,875	20,073
Florida	16,470	14,331	2,139
Alabama	102,779	84,204	18,575
Mississippi	35,432	28,344	7,088
Texas	70,006	60,881	9,125
Maryland	23,837	17,464	6,373
Virginia	95,583	81,105	14,478
North Carolina	175,325	131,992	43,333
Tennessee	156,342	120,384	35,958
Arkansas	74,828	54,221	20,607
Louisiana	78,889	82,100	[1] 3,201

[1] Increase.

The decrease in illiteracy in North Carolina and Tennessee is almost incredible. Nothing short of a general educational awakening could have produced such results. On the surface the figures of this exhibit

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seem to promise universal literacy without attendance compelled by law. But let these figures be interpreted in the light of cold facts. Taking the total number of illiterates in these 12 States in 1910 as the basis, according to the actual decrease between 1900 and 1910, it would require 30 years for Maryland and Arkansas to banish white illiteracy from their borders with their present educational machinery and efforts. It would require 40 years for Georgia, Mississippi, and Tennessee. At the same rate for Virginia and Texas it would require 60 years, while South Carolina would have white illiteracy in her borders at the end of a century. Without some relief from her present condition, when can Louisiana hope to banish her white illiteracy?

But the interpretation is not finished. For every 1,000 persons 10 years of age and over classed as illiterates there are several hundred other persons who can mechanically scrawl their names in such way as to be legible and who can spell out sentences with difficulty. These persons are unable to write well enough for either business or social correspondence. Their ability to read is less than that necessary to get an intelligent meaning from an ordinary newspaper article. We get only a partial view of the situation when we see illiteracy as reported in the census tables. To the census tables must be added that army of near-illiterates who are without even the rudiments of an education and who are thus handicapped as creative forces in the State.

The opponents of compulsory attendance insist that the people will send their children to school without being compelled to do so, if only they are shown their duty and their obligation to their children. These opponents declare that the younger generation of white children are already in school. Neither contention is true. For 20 years the ablest and safest leaders, men and women whose names stand high in the Nation, have been tireless in their efforts to get the children into the schools without compulsion, yet approximately 25 per cent of the native white children between the ages of 6 and 14 are not in school at all. In 1910 the 12 Southern States under discussion had 788,699 native white children between the ages of 6 and 14 not in school. Here are the figures:

EXHIBIT G.—*Native white children between 6 and 14 years of age not in school.*

States.	Children.	Per cent.
Maryland	25,157	16.7
Virginia	74,505	26.8
North Carolina	79,261	24.3
Tennessee	97,071	24.8
Arkansas	60,231	25.3
Louisiana	58,197	31.6
South Carolina	39,977	27.9
Georgia	76,342	25.2
Florida	21,854	27.9
Alabama	78,142	30.0
Mississippi	26,730	15.8
Texas	151,232	25.7

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In this exhibit no account is taken of the children of either foreign or mixed white parentage or the foreign-born whites. The figures are confined to the native white stock.

In some States one hears the perennial explanation of the relatively small per capita expenditure for schools—that the earning capacity of the people is small. Will the per capita earning capacity ever be what it might so long as thousands of wage earners are so fettered by ignorance as to be fitted for only the most ill-paid occupations? Intelligence and training are the means whereby men are transformed from menials into artisans at a living wage. Poverty and stress of war can no longer be offered as a palliative for the illiteracy of the children who ought to be in school.

Who are these illiterate white children and why are they not in school? Some of them are the sons and daughters of parents themselves ignorant and unable to appreciate or to understand what an education means to their children and to the State. Some are the children of sordid fathers and mothers who are more than willing to make wage earners and bread winners of their untaught offspring at the expense of their future manhood and womanhood. Many are at work on the farms, sacrificed to the monotonous round of planting crops, cultivating crops, harvesting crops, and again planting crops; some are at work in stores and shops or engaged as messenger boys, all at a small wage; many are employed in the nerve-dulling and blood-sapping environment of the mills, receiving good wages as children in exchange for vigor of body and training of mind as men and women, while thousands of others are roaming the streets and country lanes, the training grounds for idlers, vagrants, and enemies to law, order, and decency. Many of these children are the descendants of *The forgotten man*, so well portrayed by Ambassador Page in his "The Rebuilding of Old Commonwealths." They became the *neglected mass*, and the neglected mass has become the *indifferent mass*. When any considerable number of people in a State become indifferent to the intellectual, moral, and social conditions of themselves and their offspring, the situation becomes alarming, for illiteracy, like every other evil, tends to perpetuate itself. The illiterate parent and the near-illiterate citizen are usually content with short school terms, small and irregular attendance, ill-equipped and ill-paid teachers, inferior schoolhouses, rude furniture, and antiquated textbooks. The blighting blackness of ignorance obscures the light of knowledge and too often leaves the ignorant man wholly satisfied with his dismal lot. And one of the most unpromising features of this already gloomy prospect is that in many of the States the illiterate females outnumber the illiterate males. An illiterate mother does not promise much for the child of to-morrow.

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Has the State the right to compel a parent to send his child to school? Many object to the word "compulsory." They are exceedingly anxious lest we should introduce into our government machinery something practiced by some ancient aristocracy or suggested by some modern monarchy. They fail to see that compulsory education is in its spirit and purpose both modern and democratic, in that it is destructive of all artificial class distinctions and aims to give all as nearly an even start in life as possible. Years ago we accepted without much serious question the doctrine that popular education is necessary to the growth and permanence of our republican institutions. Since all classes of our heterogeneous society are active factors therein, the State maintains schools for all the children of all the people in order to render its citizenship homogeneous in spirit and purpose. The public schools exist primarily for the benefit of the State rather than for the benefit of the individual. The State seeks to make every citizen intelligent and serviceable. The State compels the rich man to pay taxes to help support the schools, not because it owes the poor man's child an education, but because the State needs the intelligent services of that child. The schools are democratized by compelling the rich and poor alike to pay taxes according to their ability for something necessary to all.

When the State has provided schools for all its children, it has performed only a part of its duty. If a universal school tax is justifiable on the ground that popular education is a necessity, compulsory attendance by the State is also justifiable. The State has no right to levy and collect taxes for a specific purpose, then permit that purpose to be defeated at the hands of indifferent or selfish parents. For the State, under the mandates of law, to collect taxes for the education of its children and fail to give the education to the legal beneficiaries is a moral crime, if not a statutory one. In this connection one hears much about the sacred rights and personal privileges of the parent who neglects or refuses to send his child to school. Has the helpless child no sacred rights? Has the State not some privileges? The tendency to shift from the home those functions which properly belong there is regrettable. One of those functions is to train the children for their duties and responsibilities in the social organism. Society itself is imperiled whenever its members are unfit. One of the essentials of fitness is what we call education. Therefore, whenever the home refuses or neglects to prepare the child for society, it is not only the privilege but the duty of the State to see that the child is fitted for its part. Argument against the right of the State to send the child to school seems specious, superficial, and obsolete. Those who make such argument would not for one moment deny the right of the State to compel the parent to feed and clothe

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his child, to compel him to vaccinate his child, or to compel him to fight for his country and to shoot him if he should desert. No one questions the right of the State to carry the law-breaking child to the reformatory or to jail to protect society. Has not the State as much right to carry the child to the schoolhouse to save him from the reformatory or the jail, and to train him to benefit society?

When the State compels the parent to send his child to school, it is simply compelling the parent to put the child in possession of his own rightful inheritance. In a narrow sense that inheritance is his right to the benefit of what the State has collected and set apart for him; in a wider and truer sense it means his opportunity to make of himself all that his God-given abilities will permit him to become; in the broadest sense it is his becoming fitted to take his place in the State to perform the sacred duties of an intelligent and patriotic citizen.

Objection is often made that compulsory attendance would work hardships in the homes of the poor. Is it not a fact that the poor child is the very one who most needs the aid of the State to bring him into possession of his own? He it is who must soon face the complexities of modern life and the insistent demands of citizenship with none of the advantages common to birth or wealth. The poor child is the very one whom the State ought to help, because he himself is helpless. The child of the poor must work, but is it either right or humane that he should be forever denied his share of his inheritance in order to be a breadwinner for a selfish, unfeeling father? If it be true that the American home can not be supported by the adult members of the normal family, we are confronted with one of the gravest problems ever met in any country. No State on a sound economic and social basis can afford to permit its children to be employed as breadwinners when they should be in school equipping themselves for productive citizenship. Besides, it ought not to require much economic sagacity to understand that every child put into any gainful occupation contributes to the lowering of the wage or income of every adult in the same establishment. Child labor is ruinous to the wages of the parents.

Over and over we are assured that compulsory attendance laws could not be enforced, that such laws would be ignored or defied. That is begging the question. Why not the same skepticism about the enforcement of any other law? The opponents insist that a compulsory law could not be enforced, because the people are not ready for such a law. Would there be any use for this law or any other law, if all the people were ready and waiting to obey it? Laws are enacted to compel men to do that which they ought to do, but will not do voluntarily. Tens of thousands of people in America are not

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obeying the Ten Commandments. Are we to justify this disobedience on the ground that the people are not quite ready for the Decalog? Or, is the Decalog a piece of unwise and premature legislation, because some of us do not obey it? Will any law enforce itself? Will any law be enforced until an honest effort has been made to do so? And what is meant by successful enforcement? Can the enforcement of a law be called unsuccessful so long as it is violated by the few? In every civilized land there is a law against homicide. There are many violations of that law. Shall we for that reason call the law a failure and repeal it? To argue that a compulsory attendance law could not be enforced is to argue that we are not a law-abiding people.

It is further argued that a child forced to attend school would derive but little benefit from such attendance. Those who argue thus forget that the compulsion is not in bringing to the school the unwilling child, but in forcing an indifferent, mercenary, or recreant parent to let his child go to school. The average child between 8 and 14 years of age is willing enough to go to school, if he has even the opportunity.

Another contention is that compulsory laws could not be enforced without truant officers, and that such officer must be paid out of the school funds. No one denies the necessity for the truant officer and that he must be paid. Any city in the land would save thousands of dollars every year in the way of salaries, if it would dismiss its policemen, its constables, and its detectives. But these officers are necessary to perform for the people services more valuable than the sum of salaries. So it would be with the truant officers. We are perfectly willing to pay an officer of the law to arrest men for the most trivial offenses, but it is out of all reason to pay an officer of the law to see that a lazy, selfish, or thriftless father sends his child to school to give him an opportunity to improve on his father. The history of compulsory attendance laws has been that after a few months' operation the violations become fewer and fewer, the enforcement of the laws finally becoming nearly automatic.

Frequently the opponents insist that we have not enough schoolhouses and teachers to take care of the thousands of children whom a compulsory law would add to the school attendance. If this be true, the situation should be alarming to even the opponents. These opponents, were they farmers, would probably oppose any increase in the yield of their cornfields, because their corncribs would not hold the crop. Such argument is puerile, unless we are prepared to admit that the people are actually unable to take care of their own children. Will the schoolhouses ever be built or the teachers employed until there is need for them?

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MARYLAND.																	
Baltimore	558,485	24,014	22	1,256	190	698	6	(1)	45	$500	$333	$333	$250	1	.....	1901	Graduation from approved kindergarten training school.
Port Deposit	1,394	59	1	26	171	14	4	6	2	700	500	250	.....	1	.....	(2)	(2)
MASSACHUSETTS.																	
Attleboro	16,215	697	1	39	183	20	4	(2)	2	525	.....	.....	325	1	.....	1897	(2)
Boston	670,585	28,835	124	6,160	184	[3] 4,340	4	5	228	1,032	696	768	480	1	.....	1888	Graduation from normal school.
Braintree	8,066	346	5	166	171	94	5	(1)	5	550	450	.....	.....	1	.....	[4] 1893	Graduation from training school.
Bridgewater	7,688	330	1	48	183	28	4	6	2	1,000	.....	.....	.....	2	Yes...	(2)	Normal training.
Brookline	27,792	1,195	11	423	187	315	3½	(1)	21	800	.....	700	.....	1	.....	1889	Adequate training and experience.
Cambridge	104,839	4,508	32	1,414	191	820	4	6	28	750	510	672	510	[5] 2	Yes...	1889	Graduation from high school and training school and 1 year's experience.
Chicopee	25,401	1,092	2	78	193	46	4	6	2	620	400	560	400	2	Yes...	1899	Diploma from preparatory kindergarten training school.
Dedham	9,284	399	4	120	188	100	4	(2)	4	550	550	.....	.....	1	.....	1903	Graduation and 1 year's experience.
Easton	5,139	220	1	39	188	19	4½	7	2	475	200	.....	.....	1	.....	(2)	Graduation from approved kindergarten training school.
													540	1	.....	1892	Graduation from high school; graduation [illegible] training school.

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Methuen	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Milton	1,400	400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
New Bedford	23,623	2,945	15	740	180	132	(1)	14	700	680	[illegible]	[illegible]	2	Yes	(2)
	23,623	2,945	15	740	180	132	(1)	14	700	680	400	400	2	Yes	(2)
Newton	39,885	5,764	14	1,324	189	464	4	17	99	875	475	500	100	1	1906
North Adams	22,019	2,501	5	550	180	114	4½	6	10	800	400	400	310	1	1895
Northampton	19,431	2,551	12	1,135	180	1 [illegible]	5	5	8	600	600	[illegible]	[illegible]	1	(3)
Pittsfield	32,121	1,151	12	1,204	180	1 [illegible]	4	5	12	440	400	[illegible]	[illegible]	1	(3)
Salem	43,697	1,478	24	1,393	200	1,14	4	5	9	800	480	480	400	1	1898
						1,74				800	800	450	300	1	1898
Somerville	77,236	3,731	4	2,448	185	173	5	(3)	35	650	500	475	200	1	1890
Springfield	69,850	2,008	17	1,614	180	630	4	5		800	700	650	400	1	1894
Waltham	27,834	1,196	5	940	188	148	4½	6	9	750	[illegible]	450	[illegible]	1	1906
Westfield	16,044	669	5	190	190	126	4½	5½	10	520	400	[illegible]	[illegible]	1	1898
West Springfield	9,224	390	2	42	180	25	4	5	1	499	499	[illegible]	[illegible]	2	Yes	1899
Winchester	9,309	399	2	84	184	51	4	6	1	575	[illegible]	[illegible]	[illegible]	1	1893
Worcester	145,986	6,307	33	1,748	184	844	5	6	43	850	550	450	400	1	1892
MICHIGAN.															
Algonac	1,204	51	2	40	180	28	5	(3)	1	450	[illegible]	[illegible]	[illegible]	2	Yes	1907
Alma	2,757	118	2	105	194	75	5½	(3)	2	550	500	500	500	2	Yes	1903
Ann Arbor	14,817	637	2	39	180	34	5½	(3)	1	700	500	[illegible]	[illegible]	2	Yes	1909
Bad Axe	1,559	60	1	43	194	34	5	7	1	450	[illegible]	[illegible]	[illegible]	2	Yes	1907
Baraga	1,071	46	1	52	198	50	4	(3)	1	500	[illegible]	[illegible]	[illegible]	2	Yes	1907
Bay City	46,166	1,942	18	942	188	300	5	(3)	9	750	500	[illegible]	[illegible]	2	Yes	1902
Belding	4,119	170	4	78	200	68	5	5	2	550	400	[illegible]	[illegible]	2	Yes	1905
Bellaire	1,050	45	1	28	180	18	5	5	1	450	405	[illegible]	[illegible]	1	Yes	1900
Benton Harbor	9,195	394	6	190	175	110	5	5	5	500	450	[illegible]	[illegible]	1	[illegible]	1908
Bessemer	4,583	196	3	132	200	126	5	6	3	650	530	250	150	2	Yes	1909
Big Rapids	4,519	193	4	105	200	93	5	7	10	550	450	[illegible]	[illegible]	2	Yes	1911
Boyne City	5,218	224	3	125	190	73	5	7	3	523	475	238	190	2	Yes	1910
Cadillac	8,378	359	10	251	200	170	5	7	8	500	450	[illegible]	[illegible]	2	Yes	(4)
Calumet	32,846	1,412	15	740	190	653	4	6	15	700	500	450	300	2	Yes	1907
Caro	2,272	97	2	100	195	70	5	7	1	500	500	[illegible]	[illegible]	2	Yes	1905
Cheboygan	1,358	58	1	38	190	28	5	6	1	427	[illegible]	[illegible]	[illegible]	2	Yes	(3)

[illegible] Normal or kindergarten graduation.
[illegible] Graduation from approved kindergarten training school.
[illegible] Normal or approved school.
[illegible] Graduation from normal school.
[illegible] High school graduation; normal graduation; 2 years' experience.
[illegible] Graduation from kindergarten training school; 2 years' experience.
[illegible] Graduation from approved kindergarten training school.
[illegible] Graduation from approved school.
(4) Yes.
Graduation from kindergarten training school.
College training or suitable experience.
Graduation from kindergarten training school; successful experience.
Graduation from kindergarten training school; 2 years' experience.
Graduation from State normal or kindergarten training school.
Kindergarten training or normal school.
Graduation from kindergarten school and experience.
High-school graduation; kindergarten training school.

(3)
Normal for college training.
Normal-school graduation.
State life certificate.
Normal training.
Graduation from approved kindergarten training school.
Normal college training.
Normal school training.
Graduation from kindergarten training school.
Two years' normal training.
Graduation from approved kindergarten training school.
Normal graduation; 2 years' training.
Graduation from approved kindergarten training school.
Kindergarten certificate.
College.
Normal or kindergarten graduation.

[1] Not fixed; depends on development.
[2] No data.
[3] Estimated.
[4] Approximate.
[5] Have since returned to one session.
[6] Largest salaries for teachers of two sessions, smallest salaries for teachers of one session.

[illegible] sense of being supported by the cities in which they are situated, and yet they are supported by State or county [illegible] therefore to place normal school kindergartens in the table other than public.

[1] Supported by donations.
[2] Estimated.
[3] No data.
[4] Statistics for year ended June, 1913.
[5] Approximate.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MARYLAND.																	
Baltimore	558,485	24,014	22	1,256	190	698	6	(1)	45	$500	$333	$333	$250	1	.....	1901	Graduation from approved kindergarten training school.
Port Deposit	1,394	59	1	26	171	14	4	6	2	700	500	250	.....	1	.....	(2)	(2)
MASSACHUSETTS.																	
Attleboro	16,215	697	1	39	183	20	4	(2)	2	525	.....	.....	325	1	.....	1897	(2)
Boston	670,585	28,835	124	6,160	184	[3] 4,340	4	5	228	1,032	696	768	480	1	.....	1888	Graduation from normal school.
Braintree	8,066	346	5	166	171	94	5	(1)	5	550	450	.....	.....	1	.....	[4] 1893	Graduation from training school.
Bridgewater	7,688	330	1	48	183	28	4	6	2	1,000	.....	.....	.....	2	Yes...	(2)	Normal training.
Brookline	27,792	1,195	11	423	187	315	3½	(1)	21	800	.....	700	.....	¶	.....	1889	Adequate training and experience.
Cambridge	104,839	4,508	32	1,414	191	820	4	6	28	750	510	672	510	[5] 2	Yes...	1889	Graduation from high school and training school and 1 year's experience.
Chicopee	25,401	1,092	2	78	193	46	4	6	2	620	400	560	400	2	Yes...	1899	Diploma from preparatory kindergarten training school.
Dedham	9,284	399	4	120	188	100	4	(2)	4	550	550	.....	.....	1	.....	1903	Graduation and 1 year's experience.
Easton	5,139	220	1	39	188	19	4½	7	2	475	200	.....	.....	1	.....	(2)	Graduation from approved kindergarten training school.
																1892	Graduation from high school; graduation [illegible] training school

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New Bedford	[illegible]	1,711	14	[illegible]	[illegible]	484	4	[illegible]	80	875	475	500	100	1		1908	Graduation from approved kindergarten training school.
Newton	[illegible]	960	6	950	190	114	4½	6	10	600	600	400	210	1		1880	Graduation from kindergarten training school.
North Adams	22,019																
North Attleboro	9,[illegible]	411	3	155	180	⁵99	5	6	⁵8	600	500			1		(²)	Graduation from approved school.
Northampton	19,431	546	3	60	180	72	4	6	2	440	400			1		(²)	(²)
Pittsfield	39,[illegible]	1,881	4	214	194	⁵140	4	0	8	600	480	480	400	1		1908	Do.
Salem	45,697	1,878	5	282	200	178	4	5	9	550	500	550	500	1		1895	Graduation from kindergarten training school.
Somerville	77,236	3,321	4	948	188	173	5	(²)	8	650	300	475	200	1		1890	College training or suitable experience.
Springfield	88,926	2,008	17	1,634	180	630	4	5	55	⁶800	700	550	⁶400	⁷1		1894	Graduation from kindergarten training school; successful experience.
Waltham	27,834	1,196	5	240	188	148	4½	6	9	750		450		1		1906	Graduation from kindergarten training school; 2 years' experience.
Westfield	16,044	660	5	190	190	120	4½	5½	10	520	400			1		1898	Graduation from State normal or kindergarten training school.
West Springfield	9,224	396	2	⁵42	185	⁵25	4	5	1	409	409			2	Yes	1899	Kindergarten training or normal school.
Winchester	9,309	399	2	84	184	51	4	6	4	575				1		1893	Graduation from kindergarten school and experience.
Worcester	145,986	6,307	33	1,748	184	844	5	6	43	850	550	450	400	1		1892	High-school graduation; kindergarten training school.
MICHIGAN.																	
Algonac	1,204	51	2	40	180	28	5	(¹)	1	450	500	500	500	2	Yes	1907	(²)
Alma	2,757	118	2	105	194	75	5½	6	2	550	500			2	Yes	1903	Normal for college training.
Ann Arbor	14,817	697	2	39	180	34	5	(²)	1	700				2	Yes	1900	Normal-school graduation.
Bad Axe	1,559	66	1	43	194	38	5	7	1	450				2	Yes	⁴1907	State life certificate.
Baraga	1,071	40	1	52	198	80	4	(²)	1	500				2	Yes	1902	Normal training.
Bay City	45,166	1,942	18	342	188	300	5	(¹)	9	750	500			2	Yes	1905	Graduation from approved kindergarten training school.
Belding	4,119	176	4	75	200	68	5	(²)	2	550	400			2	Yes	⁴1900	Normal college training.
Bellaire	1,050	45	1	28	180	18	5	(¹)	1	450	405			1		1906	Normal school training.
Benton Harbor	9,185	394	6	199	175	110	5	7	5	500	450			2	Yes	1911	Graduation from kindergarten training school.
...ssemer	4,583	196	3	132	200	125	5	6	3	650	550	250	150	2	Yes	1900	Two years' normal training.
...r Rapids	4,519	103	4	105	200	93	5	7	10	550	450			2	Yes	(²)	Graduation from approved kindergarten training school.
...ne City	5,218	224	3	125	190	73	5	7	2	522	475	238	190	2	Yes	1907	Normal graduation; 2 years' training.
...illac	8,375	359	10	251	200	175	5	7	5	600	450			2	Yes	1890	Graduation from approved kindergarten training school.
...umet	32,845	1,412	15	740	196	653	4	6	15	700	600	450	300	2	Yes	1885	Kindergarten certificate
...o	2,272	97	2	100	196	70	5	7	1	500	500			2	Yes	(²)	College.
...aopolis	1,868	58	1	38	190	26	5	6	1	427				2	Yes	(²)	Normal or kindergarten graduation

¹ Not fixed; depends on development.
² No data.
³ Estimated.
⁴ Approximate.
⁵ Have since returned to one session.
⁶ Largest salaries for teachers of two sessions, smallest salaries for teachers of one session.
⁷ In some cases two sessions.

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C. 81

In classifying kindergartens in normal schools and [illegible] sense of being supported by the cities in which they are situated, and yet they are supported by State or county [illegible] therefore to place normal school kindergartens in the table other than public.

¹ Supported by donations.
² Estimated.
³ No data.
⁴ Statistics for year ended June, 1913.
⁵ Approximate.

11	67	180	28	1	360

³ No data.
⁴ Estimated.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MARYLAND.																	
Baltimore	558,485	24,014	22	1,256	190	698	6	(1)	45	$500	$333	$333	$250	1	.....	1901	Graduation from approved kindergarten training school.
Port Deposit	1,394	59	1	26	171	14	4	6	2	700	500	250	.....	1	.....	(2)	(2)
MASSACHUSETTS.																	
Attleboro	16,215	697	1	39	183	20	4	(2)	2	525	.....	.....	325	1	.....	1897	(2)
Boston	670,585	28,835	124	6,160	184	[3] 4,340	4	5	228	1,032	696	768	480	1	.....	1888	Graduation from normal school.
Braintree	8,066	346	5	166	171	94	5	(1)	5	550	450	.....	.....	1	.....	[4] 1893	Graduation from training school.
Bridgewater	7,688	330	1	48	183	28	4	6	2	1,000	.....	.....	.....	2	Yes...	(2)	Normal training.
Brookline	27,792	1,195	11	423	187	315	3½	(1)	21	800	.....	700	.....	[4]	.....	1889	Adequate training and experience.
Cambridge	104,839	4,508	32	1,414	191	820	4	6	28	750	510	672	510	[5] 2	Yes...	1889	Graduation from high school and training school and 1 year's experience.
Chicopee	25,401	1,092	2	78	193	46	4	6	2	620	400	560	400	2	Yes...	1899	Diploma from preparatory kindergarten training school.
Dedham	9,284	399	4	120	188	100	4	(2)	4	550	550	.....	.....	1	.....	1903	Graduation and 1 year's experience.
Easton	5,139	220	1	39	188	19	4½	7	2	475	200	.....	.....	1	.....	(2)	Graduation from approved kindergarten training school.
																1892	Graduation from high school; graduation

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Lowell	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	Normal school or college graduation.
Marblehead	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	500	400	......	......	[illegible]	......	[illegible]	Graduation from approved kindergarten training school.
Methuen	11,448	[illegible]	[illegible]	[illegible]	[illegible]	[4] [illegible]	[illegible]	(3)	6	570	[illegible]			[illegible]	Yes...	(3)	Normal or approved school.
Milton	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	5	700	[illegible]	400	300	[illegible]	Yes...	(3)	Graduation from normal school.
New Bedford	[illegible]	4,1[illegible]	12	[illegible]	[illegible]	701	[illegible]	(1)	12	750	550	......	......	[illegible]		1897	High-school graduation; normal graduation; 1 year's experience.
Newton	39,806	1,711	14	820	189	484	4	[1] 7	29	675	475	300	100	1	......	1899	Graduation from approved kindergarten training school.
North Adams	22,019	946	5	923	190	114	4½	6	10	560	400	400	310	1	......	1890	Graduation from kindergarten training school.
North Attleboro	9,562	411	3	105	180	[4] 92	5	6	[5] 3	600	500	......	......	1	......	(3)	Graduation from approved school.
Northampton	19,431	535	2	80	189	72	4	6	2	440	400	......	......	1	......	(3)	(3)
Pittsfield	32,121	1,381	4	264	194	[5] 140	4	6	8	800	480	480	400	1	......	1908	Do.
Salem	43,697	1,878	5	282	200	178	4	5	9	550	300	550	300	1	......	1895	Graduation from kindergarten training school.
Somerville	77,236	3,321	4	248	185	173	5	(3)	8	650	300	475	200	1	......	1896	College training or suitable experience.
Springfield	62,059	2,668	17	1,634	180	639	4	5	35	[6] 800	700	550	[6] 400	[7] 1	......	1894	Graduation from kindergarten training school; successful experience.
Waltham	27,834	1,196	5	240	188	148	4½	6	9	750	......	450	......	1	......	1906	Graduation from kindergarten training school; 2 years' experience.
Westfield	16,044	689	5	190	190	120	4½	5½	10	520	400	......	......	1	......	1898	Graduation from State normal or kindergarten training school.
West Springfield	9,224	396	2	[5] 42	185	[5] 25	4	5	1	469	469	......	......	2	Yes...	1896	Kindergarten training or normal school.
Winchester	9,309	399	2	84	184	51	4	6	4	575	......	......	......	1	......	1893	Graduation from kindergarten school and experience.
Worcester	145,986	6,307	33	1,748	184	844	5	6	43	850	550	450	400	1	......	1892	High-school graduation; kindergarten training school.
MICHIGAN.																	
Algonac	1,204	51	2	46	180	28	5	(1)	1	450	......	......	......	2	Yes...	1907	(3)
Alma	2,757	118	2	105	194	75	5½	6	2	550	500	500	500	2	Yes...	1903	Normal for college training.
Ann Arbor	14,817	637	2	39	186	34	5	(3)	1	700	500	......	......	2	Yes...	1909	Normal-school graduation.
Bad Axe	1,559	66	1	43	194	38	5	7	1	450	......	......	......	2	Yes...	[4] 1907	State life certificate.
Baraga	1,071	46	1	52	198	50	4	(3)	1	500	......	......	......	2	Yes...	1902	Normal training.
Bay City	45,166	1,942	18	342	188	300	5	(1)	9	750	500	......	......	2	Yes...	1905	Graduation from approved kindergarten training school.
Belding	4,119	176	4	75	200	68	5	(3)	2	550	400	......	......	2	Yes...	[4] 1900	Normal college training.
Bellaire	1,050	45	1	28	180	18	5	(1)	1	450	405	......	......	1	......	1906	Normal school training.
Benton Harbor	9,185	394	6	199	175	110	5	7	5	500	450	......	......	2	Yes...	1911	Graduation from kindergarten training school.
Bessemer	4,583	196	3	132	200	125	5	6	3	650	550	250	150	2	Yes...	1900	Two years' normal training.
Big Rapids	4,519	193	4	105	200	93	5	7	10	550	450	......	......	2	Yes...	(3)	Graduation from approved kindergarten training school.
Boyne City	5,218	224	3	125	190	73	5	7	2	522	475	238	190	2	Yes...	1907	Normal graduation; 2 years' training.
Cadillac	8,375	359	10	251	200	175	5	7	5	500	450	......	......	2	Yes...	1890	Graduation from approved kindergarten training school.
Calumet	32,845	1,412	15	740	196	653	4	6	15	700	500	450	300	2	Yes...	1885	Kindergarten certificate.
Caro	2,272	97	2	100	195	70	5	7	1	500	500	......	......	2	Yes...	(3)	College.
Cassopolis	1,358	58	1	38	190	28	5	6	1	427	......	......	......	2	Yes...	(3)	Normal or kindergarten graduation.

[1] Not fixed; depends on development.
[2] No data.
[3] Estimated.
[4] Approximate.
[5] Have since returned to one session.
[6] Largest salaries for teachers of two sessions; smallest salaries for teachers of one session.
[7] In some cases two sessions.

sense of being supported by the cities in which they are situated, and yet they are supported by State or county ... therefore to place normal school kindergartens in the table other than public.

[1] Supported by donations.
[2] Estimated.
[3] No data.
[4] Statistics for year ended June, 1913.
[5] Approximate.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MARYLAND.																	
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Port Deposit	1,394	59	1	26	171	14	4	6	2	700	500	250	.....	1	.....	(2)	(2)
MASSACHUSETTS.																	
Attleboro	16,215	697	1	39	183	20	4	(2)	2	525	.....	.....	325	1	.....	1897	(2)
Boston	670,585	28,835	124	6,160	184	[3] 4,340	4	5	228	1,032	696	768	480	1	.....	1888	Graduation from normal school.
Braintree	8,066	346	5	166	171	94	5	(1)	5	550	450	.....	.....	1	.....	[4] 1893	Graduation from training school.
Bridgewater	7,688	330	1	48	183	28	4	6	2	1,000	.....	.....	.....	2	Yes...	(2)	Normal training.
Brookline	27,792	1,195	11	423	187	315	3½	(1)	21	800	.....	700	.....	[6] 1	.....	1889	Adequate training and experience.
Cambridge	104,839	4,508	32	1,414	191	820	4	6	28	750	510	672	510	[5] 2	Yes...	1889	Graduation from high school and training school and 1 year's experience.
Chicopee	25,401	1,092	2	78	193	46	4	6	2	620	400	560	400	2	Yes...	1899	Diploma from preparatory kindergarten training school.
Dedham	9,284	399	4	120	188	100	4	(2)	4	550	550	.....	.....	1	.....	1903	Graduation and 1 year's experience.
Easton	5,139	220	1	39	188	19	4½	7	2	475	200	.....	.....	1	.....	(2)	Graduation from approved kindergarten training school.

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[1] Not fixed; depends on development.
[2] No data.
[3] Estimated.

[4] Approximate.
[5] Have since returned to one session.

[6] Largest salaries for teachers of two sessions, smallest salaries for teachers of one session.
[7] In some cases two sessions.

(8) Normal for college training.
Normal-school graduation.
State life certificate.
Normal training.
Graduation from approved kindergarten training school.
Normal college training.
Normal school training.
Graduation from kindergarten training school.
Two years' normal training.
Graduation from approved kindergarten training school.
Normal graduation; 2 years' training.
Graduation from approved kindergarten training school.
Kindergarten certificate.
College.
(9) Normal or kindergarten graduation.

sense of being supported by the cities in which they are situated, and yet they are supported by state or county ... therefore to place normal school kindergartens in the table other than public.

[1] Supported by donations.
[2] Estimated.
[3] No data.
[4] Statistics for year ended June, 1913.
[5] Approximate.

Hamilton Carhartt Manufac-	1	1	40	180	40		1	720								
Co. Mills	1	1	67	180	28		1	360								

[2] No data.
[4] Estimated.

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A few temporizing aspirants to leadership declare for compulsory education when pressed to take a stand, but add that the people are not quite ready for it. Who are the people not quite ready? Why are they not quite ready? When shall they be quite ready? Are they not the same people who were not quite ready for any kind of education at public expense, and were not quite ready to vote for water-supply systems, for electric-light plants, and for other public utilities? These people are not quite ready to do anything which they have not always done, and some of them would not be quite ready to vote for compulsory school attendance 20 years hence, even if their children were signing their names with cross marks. These temporizers must know that by compulsion alone we shall get all the children into the schools, yet they are hindering the day which they admit ought to come. They justify their course by saying that they are leading the people instead of driving them. These men ought to know that leaders must be men of large vision, strong conviction, and faith in themselves and their cause. They mistake timidity for discretion. Parents in the bonds of ignorance, blinded by indifference, greed, and stifling cupidity, are not easily lured into educating their children. Experience teaches that compulsion is necessary. Neither bonuses nor local-option laws will put all the children into the schools. The tale of those who have tried local option in this matter is one of pitiable failure, save as a mere preface to State-wide compulsion.

The argument against compulsory attendance on account of the negro has been worn threadbare; surely the time has come to drop it. Some phases of it are pathetic. Is it wise or expedient to permit thousands of white boys and girls to grow up in ignorance lest in forcing them into school the aspirations of the negro child should be awakened? Shall the white man remain ignorant in order to encourage or to compel the negro to remain ignorant? Is it better for white and black to remain ignorant than for both to become intelligent? The only logical conclusion to such argument is that the ignorant white man can compete successfully with the ignorant negro, but that the trained white man can not compete with the trained negro. Then what becomes of the boasted superiority of the white man? Has the white man so nearly reached the zenith of his possibilities that he can not keep well in advance of the ambitious negro?

The man who opposes compulsory attendance from a fear of putting the negro into school must be ill-informed as to the actual situation. The negro child needs no compulsory law to put him into school. He is already there wherever and whenever possible. No matter what a man's views on negro education, his admiration is

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challenged by the zeal and eagerness of the negro child to go to school. His thirst for knowledge would be commendable in any race. Not only is the negro in school, but he is learning. Let any skeptic examine the following figures:

EXHIBIT H.—*Negro illiterates 10 years of age and over.*

State.	[illegible]	[illegible]	[illegible]
	Per ct.	Per ct.	Per ct.
Maryland	[illegible]	[illegible]	[illegible]
Virginia	[illegible]	[illegible]	[illegible]
North Carolina	[illegible]	[illegible]	[illegible]
Tennessee	[illegible]	[illegible]	[illegible]
Arkansas	[illegible]	[illegible]	[illegible]
Louisiana	[illegible]	[illegible]	[illegible]
South Carolina	[illegible]	[illegible]	[illegible]
Georgia	[illegible]	[illegible]	[illegible]
Florida	[illegible]	[illegible]	[illegible]
Alabama	[illegible]	[illegible]	[illegible]
Mississippi	[illegible]	[illegible]	[illegible]
Texas	[illegible]	[illegible]	[illegible]

There are many who contend that our educational conditions are matters for congratulation. The writer yields to no one in the matter of pride over what has been accomplished educationally in the past 40 years. It is a source of constant delight to see and to hear of so many tangible evidences of educational progress. For several decades the various organizations of educational workers have been coming together annually to discuss means for the betterment of the schools. They have brought together regularly much of the best thought and ripest experience of the Nation, and have laid just tribute upon foreign countries in their conferences. It is no empty boast to say that these organizations have wrought wonderfully in constructive educational statesmanship. In addition to all these, Congressmen, governors, legislators, publicists, philanthropists, business men, and taxpayers have frequently come together to consider the means for educational advancement.

In all these gatherings we have planned better schools, inspired the taxpayers to vote taxes for schools, encouraged the people to build model schoolhouses, to lengthen their school terms, to employ better teachers and to pay them better salaries, and to make their schools their pride. But what has been accomplished in the way of a substantial decrease in the illiteracy of the citizenship? In these larger gatherings one State reports that it has put its university at the head as to entrance requirements; another State reports that it has doubled its school revenues within very recent years; another reports that it has doubled its secondary-school attendance within a very short time; another boasts that it has marvelously increased its common-school enrollment within the past 10 years, but over-

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looks the fact that its natural decennial increase in population also has been marvelous; still another State boasts that it has built a new schoolhouse every week day in the year and two on Sundays. All these reports are inspiring, but how many have had the courage or the cause to boast of any permanent, substantial decrease in the illiteracy of their people? Of what value are all our school taxes, our elegant schoolhouses, our improved schools to the thousands of boys and girls who never enter the door of a schoolhouse?

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V. LAWS OF OHIO AND OF MASSACHUSETTS RELATING TO COMPULSORY EDUCATION AND CHILD LABOR.

OHIO.[1]

AN ACT * * * relating to children and to females under 21 years of age and to organizations which include within their objects matters relating to children.

(Approved May 9, 1913.)

Be it enacted by the General Assembly of the State of Ohio:

COMPULSORY EDUCATION.

SEC. 7763. Every parent, guardian, or other person having charge of any child between the ages of 8 and 15 years of age, if a male, and 16 years of age if a female, must send such child to a public, private, or parochial school, for the full time that the school attended is in session, which shall in no case be for less than 28 weeks. Such attendance must begin within the first week of the school term, unless the child is excused therefrom by the superintendent of the public schools, in city or other districts having such superintendent, or by the clerk of the board of education in village, special, and township districts not having a superintendent, or by the principal of the private or parochial school, upon satisfactory showing, either that the bodily or mental condition of the child does not permit of its attendance at school, or that the child is being instructed at home by a person qualified, in the opinion of such superintendent or clerk, as the case may be, to teach the branches named in the next preceding section.

SEC. 7764. In case such superintendent, principal, or clerk refuses to excuse a child from attendance at school, an appeal may be taken from such decision to the judge of the juvenile court of the county, upon the giving of a bond, within 10 days thereafter, to the approval of such judge, to pay the costs of the appeal. His decision in the matter shall be final. All children between the ages of 15 and 16 years, not engaged in some regular employment, shall attend school for the full term the schools of the district in which they reside are in session during the school year, unless excused for the reasons above named.

SEC. 7765. No boy under 16 years of age and no girl under 18 years of age shall be employed or be in the employment of any person, company, or corporation unless such child presents to such person, company, or corporation an age and school certificate herein provided for, as a condition of employment. Such employer shall keep the same on file in the establishment where such minor is employed for inspection by the truant officer or officers of the department of workshops and factories.

SEC. 7766. An age and schooling certificate shall be approved only by the superintendent of schools, or by a person authorized by him, in city or other districts having such superintendent, or by the clerk of the board of education in village, special, and township districts not having such superintendent, upon satisfactory proof that such child, if a male, is over 15 years of age or, if a female, is over 16 years of age, and that such child has been examined and passed a satisfactory sixth-grade test, if a male,

[1] Ohio Session Laws, 1913, pp. 864, et seq.

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In case the board of education of any school district establishes part-time day schools for the instruction of youth over 15 years of age who are engaged in regular employment, such board of education is authorized to require all youth who have not satisfactorily completed the eighth grade of the elementary schools to continue their schooling until they are 16 years of age: *Provided, however*, That such youth, if they have been granted age and schooling certificates and are regularly employed, shall be required to attend school not to exceed eight hours a week, between the hours of 8 a. m. and 5 p. m. during the school term. All youth between 15 and 16 years of age, who are not employed, shall be required to attend school the full time.

SEC. 7768. Every child between the ages of 8 and 15 years, if a male, or between the ages of 8 and 16, if a female, and every male child between the ages of 15 and 16 years not engaged in some regular employment, who is an habitual truant from school, or who absents itself habitually from school, or who, while in attendance at any public, private, or parochial school, is incorrigible, vicious, or immoral in conduct, or who habitually wanders about the streets and public places during school hours, having no business or lawful occupation, or violates any of the provisions of this act, shall be deemed a delinquent child, and shall be subject to the provisions of law relating to delinquent children.

SEC. 7770. The truant officer and assistants shall be vested with police powers, and the authority to serve warrants, and have authority to enter workshops, factories, stores, and all other places where children are employed, and do whatever may be necessary, in the way of investigation or otherwise, to enforce this act. He also may take into custody any youth between 8 and 15 years of age, or between 15 and 16 years of age, when not regularly employed, who is not attending school, and shall conduct such youth to the school he has been attending, or which he rightfully should attend.

SEC. 7771. The truant officer shall institute proceedings against any officer, parent, guardian, person, partnership, or corporation violating any provisions of this chapter, and otherwise discharge the duties described therein, and perform such other services as the superintendent of schools or the board of education may deem necessary to preserve the morals and secure the good conduct of school children, and to enforce the provisions of this chapter. The truant officer shall keep on file the name, address, and record of all children between the ages of 15 and 16 to whom age and schooling certificates have been granted who desire employment, and manufacturers, employers, or other persons requiring help of legal age shall have access to such files. The truant officer shall cooperate with the department of workshops and factories in enforcing the conditions and requirements of the child-labor laws of Ohio, furnishing upon request such data as he has collected in his reports of children from 8 to 16 years of age and also concerning employers, to the department of workshops and factories and to the State commissioner of schools. He must keep a record of his transactions for the inspection and information of the superintendent of schools and the board of education; and make daily reports to the superintendent during the school term in districts having them, and to the clerk of the board of education in districts not having superintendents as often as required by him. Suitable blanks for the use of the truant officer shall be provided by the clerk of the board of education.

SEC. 7773. On the request of the superintendent of schools or the board of education or when it otherwise comes to his notice, the truant officer shall examine into any case of truancy within his district, and warn the truant and his parents, guardian, or other person in charge, in writing, of the final consequences of truancy if persisted in. When any child between the ages of 8 and 15 years, or between the ages of 15 and 16 years, in violation of the provisions of this chapter is not regularly employed and is not attending school, the truant officer shall notify the parent, guardian, or other person in charge of such child, of the fact, and require such parent, guardian, or other person in charge, to cause the child to attend some recognized school within

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two days from the date of the notice; and it shall be the duty of the parent, guardian, or other person in charge of the child so to cause its attendance at some recognized school. Upon failure to do so, the truant officer shall make complaint against the parent, guardian, or other person in charge of the child, in any court of competent jurisdiction in the city, special village, or township district in which the offense occurred for such failure.

SEC. 7774. If the parent, guardian, or other person in charge of any child, upon complaint for a failure to cause the child to attend a recognized school, proves inability to do so, then he or she must be discharged and thereupon the truant officer shall make complaint that the child is a juvenile disorderly person within the meaning of section 7768. If such complaint be made before a mayor, justice of the peace, or police judge, it must be certified by such magistrate to the judge of the juvenile court, who shall hear the complaint, and if he determines that the child is a juvenile disorderly person within the meaning of such section, and if under 10 years of age, and eligible for admission thereto, he shall commit the child to a children's home, or, if not eligible, then to a house of refuge, if there be one in the county, or otherwise committed as provided by law.

SEC. 7779. Annually between the 1st day of July and the 1st day of August, truant officers must report to the judge of the juvenile court of their respective counties the names, ages, and residences of all such children between the ages of 8 and 18 years, with the names and post-office address of their parents, guardians, or the person in charge of them; also a statement whether the parents, guardians, or persons in charge of each child are able to educate and are educating the child, or whether the interests of the child will be promoted by sending it to one of the State institutions mentioned.

SEC. 7780. Upon information thus or otherwise obtained, the judge of the juvenile court may fix a time when he will hear the question whether any such child shall be required to be sent for instruction to one of the State institutions mentioned, and thereupon issue a warrant to the proper truant officer or some other suitable person, to bring the child before him, at his office at the time fixed for the hearing. He also shall issue an order on the parents, guardian, or person in charge of the child to appear before him at such hearing, a copy of which order, in writing, must be served personally on the proper person by the truant officer or other person ordered to bring the child before the judge. If, on the hearing, the judge of the juvenile court is satisfied that the child is not being properly educated at home, and will be benefited by attendance at one of the State institutions mentioned, and is a suitable person to receive instructions therein, he may send or commit such child as provided by law.

SEC. 7782. In every case of complaint against a child, involving commitment to a children's home or juvenile reformatory, the board of county visitors may be notified, and if so notified it must attend and protect the interest of the child on the hearing, as provided by law in regard to the commitment to an industrial or reform school. The order of commitment of the child to a State reformatory may show that the county visitors were so notified and attended the hearing.

OFFENSES AGAINST MINORS AND FEMALES BETWEEN 18 AND 21 YEARS.

SEC. 12957. Whoever, being a minor, enters a saloon, beer garden, or other place where intoxicating liquor is sold or offered for sale except when accompanied by a parent or guardian, shall be fined not less than $1 nor more than $5, and for each subsequent offense shall be fined not less than $5 nor more than $25 or imprisoned not more than 10 days or both.

SEC. 12964. Whoever entices a minor to engage in a game for money or other valuable thing, or makes a wager with a minor upon the result of a game, or permits a minor to play a slot machine or other gambling device for wares or merchandise or any other thing of value, shall be fined not less than $50 nor more than $100, or imprisoned not less than three months nor more than one year.

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SEC. 12966. Whoever sells or exhibits for sale, to a minor under 16 years of age, a pistol manufactured of a metallic or hard substance, commonly known as a "toy pistol" or air gun, or any form of explosive gun, shall be fined not less than $10 nor more than $50, or imprisoned not less than 10 days nor more than 20 days, or both, and be liable in damages to any person injured by such sale.

SEC. 12967. Whoever sells, barters, furnishes, or gives to a minor under the age of 17 years, an air gun, musket, rifle, shotgun, revolver, pistol, or other firearm, or ammunition therefor, or, being the owner or having charge or control thereof, knowingly permits it to be used by a minor under such age, shall be fined not more than $100 or imprisoned in jail not more than 30 days, or both.

SEC. 12968. Whoever takes, receives, hires, employs, uses, exhibits, sells, apprentices, gives away, lets out, or otherwise disposes of a child, under the age of 14 years for or in the vocation, occupation, service, or purpose of singing, playing on musical instruments, rope or wire walking, dancing, taking any part in, or appearing in connection with a moving picture exhibition or performance given in a theater or place of public amusement, begging or peddling, or as a gymnast, contortionist, rider, or acrobat, or for an obscene, indecent, or immoral purpose, exhibition, or practice, or for or in a business exhibition or vocation injurious to the health or dangerous to the life or limb of such child, or causes, procures, or encourages such child to engage therein, or causes or permits such child to suffer or inflicts upon it injustifiable physical pain or mental suffering, or has such child in custody for any of such purposes, shall be fined not more than $200 or imprisoned not more than six months, or both.

SEC. 12970-1. When such person is convicted, sentenced, and confined in a workhouse, the county from which he is so convicted, sentenced, and confined, upon the warrant of the county auditor of such county, and out of the general revenue fund thereof, shall pay monthly 50 cents for each day he is so confined, to a trustee to be appointed by the court imposing such sentence, to be expended for the maintenance of such child or children under 16 years of age.

EMPLOYING MINORS AND FEMALES BETWEEN 18 AND 21 IN FACTORY, ETC.

SEC. 12993. No male child under 15 years or female child under 16 years of age shall be employed, permitted, or suffered to work in, about, or in connection with any (1) mill, (2) factory, (3) workshop, (4) mercantile or mechanical establishments, (5) tenement house, manufactory or workshop, (6) store, (7) office, (8) office building, (9) restaurant, (10) boarding house, (11) bakery, (12) barber shop, (13) hotel, (14) apartment house, (15) bootblack stand or establishment, (16) public stable, (17) garage, (18) laundry. (19) place of amusement, (20) club, (21) or as a driver, (22) or in any brick or lumber yard, (23) or in the construction or repair of buildings, (24) or in the distribution, transmission, or sale of merchandise, (25) nor any boy under 15 or female under 21 years in the transmission of messages.

It shall be unlawful for any person, firm, or corporation to employ, permit, or suffer to work any child under 15 years of age in any business whatever during any of the hours when the public schools of the district in which the child resides are in session.

SEC. 12994. No boy under 16 years of age and no girl under 18 years of age shall be employed or permitted to work on or in connection with the establishments mentioned in section 12993 of the General Code, or in the distribution or transmission of merchandise or messages unless such employer first procures from the proper authority the age and schooling certificate provided by law.

SEC. 12995. The certificate mentioned in the section 12994 shall be filed in the office of such establishment and shall be produced for inspection upon request therefor by

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the chief or district inspector of workshops and factories or a truant officer and shall be returned forthwith to the superintendent of schools or other persons legally issuing it, by the person in charge or manager of such establishment upon the termination of the employment of such minor. Upon failure on the part of the employer so to return said certificate within two days, the child terminating his employment shall be entitled to recover from such employer in a civil action as damages an amount equal to the wages which he would have earned had he continued in said employment for the period between such termination thereof and the time when such certificate is so returned. If such child at any time fails to appear for work without explanation, the employment shall be deemed within the purposes of this section to have terminated upon the expiration of two days after his so failing to appear.

SEC. 12996. No boy under the age of 16 and no girl under the age of 18 years shall be employed, permitted, or suffered to work in, about, or in connection with any establishment or occupation named in section 12993 (1) for more than six days in any one week, (2) nor more than 48 hours in any week, (3) nor more than eight hours in any one day, (4) or before the hours of 7 o'clock in the morning or after the hour of 6 o'clock in the evening. The presence of such child in any establishment during working hours shall be prima facie evidence of its employment therein. No boy under the age of 18 years or girl under the age of 21 years shall be employed, permitted, or suffered to work in, about, or in connection with any establishment or occupation named in section 12993 (1) for more than six days in any one week, (2) nor more than 54 hours in any week, (3) nor more than 10 hours in any one day, (4) or before the hour of 6 o'clock in the morning or after the hour of 10 o'clock in the evening. In estimating such periods, the time spent at different employments or under different employers shall be considered as a whole and not separately.

SEC. 12996-1. No person having charge or management of a telephone, telegraph, or messenger office or company shall employ a boy under the age of 18 years to work as a messenger in connection with such office or company before the hour of 6 o'clock in the morning or after the hour of 9 o'clock in the evening of any day.

SEC. 12997. A boy or girl employed as provided in section 12996-1, shall be entitled to not less than 30 consecutive minutes for meal time within five hours from the time of beginning work which shall not be included as a part of the work hours of the day or week.

SEC. 12998. No child under 16 years of age shall be employed, permitted, or suffered to work in, about, or in connection with any establishment or occupation named in section 12993 unless the person, firm, or corporation employing such child keeps two complete lists of names together with the ages of all boys under 16 years of age and all girls under 18 years of age employed in or for such establishment or in such occupation, one on file and one conspicuously posted near the principal entrance of the place or establishment in which such children are employed.

Every employer shall post and keep posted in a conspicuous place in every room where any boy under the age of 18, or any girl under the age of 21 is employed, permitted, or suffered to work, a printed notice stating the maximum number of hours such person may be required or permitted to work on each day of the week, the hours of commencing and stopping work, and the hours allowed for dinner or for meals. The printed form of such notices shall be furnished by the chief inspector of workshops and factories and the employment of any minor for a longer time in any day than as stated, or at any time other than as stated in said printed notice shall be deemed a violation of the provisions of this act.

SEC. 12999. The notice provided in section 12998 shall be formulated by the chief inspector of workshops and factories, approved by the attorney general, and furnished by such inspector upon application therefor.

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SEC. 13001. No child under the age of 16 years shall be employed, permitted, or suffered to work at any of the following occupations or any of the following positions: (1) Adjusting any belt to any machinery; (2) sewing or lacing machine belts in any workshop or factory; (3) oiling, wiping, or cleaning machinery or assisting therein; (4) operating or assisting in operating any of the following machines: (a) circular or band saws; (b) wood shapers; (c) wood jointers; (d) planers; (e) sandpaper or wood-polishing machinery; (f) woodturning or boring machinery; (g) picker machines or machines used in picking wool, cotton, hair, or any other material; (h) carding machines; (i) paper-lace machines; (j) leather-burnishing machines; (k) job or cylinder printing presses operated by power other than foot power; (l) boring or drill presses; (m) stamping machines used in sheet-metal and tinware, or in paper and leather manufacturing, or in washer and nut factories; (n) metal or paper cutting machines; (o) corner-staying machines in paper-box factories; (p) corrugating rolls, such as are used in corrugated paper, roofing, or washboard factories; (q) steam boilers; (r) dough brakes or cracker machinery of any description; (s) wire or iron straightening or drawing machinery; (t) rolling-mill machinery; (u) power punches or shears; (v) washing, grinding, or mixing machinery; (w) calendar rolls in paper and rubber manufacturing; (x) laundering machines; (y) burring machinery; (5) or in proximity to any hazardous or unguarded belts, machinery, or gearing; (6) or upon any railroad, whether steam, electric, or hydraulic; (7) or upon any vessel or boat engaged in navigation or commerce within the jurisdiction of this State.

SEC. 13002. No child under the age of 16 years shall be employed, permitted, or suffered to work in any capacity (1) in, about, or in connection with any processes in which dangerous or poisonous acids are used; (2) nor in the manufacture or packing of paints, colors, white or red lead; (3) nor in soldering; (4) nor in occupations causing dust in injurious quantities; (5) nor in the manufacture or use of dangerous or poisonous dyes; (6) nor in the manufacture or preparation of compositions with dangerous or poisonous gases; (7) nor in the manufacture or use of compositions of lye in which the quantity thereof is injurious to health; (8) nor on scaffolding; (9) nor in heavy work in the building trades; (10) nor in any tunnel excavation; (11) nor in, about, or in connection with any mine, coal breaker, coke oven, or quarry; (12) nor in assorting, manufacturing, or packing tobacco; (13) nor in operating any automobile, motor car, or truck; (14) nor in a bowling alley; (15) nor in a pool or billiard room; (16) nor in any other occupation dangerous to the life and limb, or injurious to the health or morals of such child.

SEC. 13003. The State board of health may, from time to time, after a hearing duly had, determine whether or not any particular trade, process of manufacture, or occupation in which the employment of children under the age of 16 years is not already forbidden by law, or any particular method of carrying on such trade, process of manufacture, or occupation, is sufficiently dangerous to the lives or limbs or injurious to the health or morals of children under 16 years of age to justify their exclusion therefrom. No child under 16 years of age shall be employed, permitted, or suffered to work in any occupation thus determined to be dangerous or injurious to such children. There shall be a right of appeal to the common pleas court from any such determination.

SEC. 13005. No female under the age of 21 years shall be engaged or permitted to work at any employment which compels her to remain standing constantly while on duty.

SEC. 13006. No female visitor, truant officer, factory inspector, or other officer thereunto authorized by this chapter shall be prevented, as provided by law, from entering, at any time, a shop, factory, or mercantile establishment for the purpose of making a lawful inspection thereof.

SEC. 13007-1. An inspector of factories, truant officer, or other officer charged with the enforcement of this act may make demand on any employer in or about whose

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place or establishment a child apparently under the age of 16 years is employed or permitted or suffered to work, and whose employment certificate is not filed as required by this act, that such employer shall furnish him, within 10 days, satisfactory evidence that such child is in fact over 16 years of age. The inspector of factories, truant officer, or other officer charged with the enforcement of this act, shall require from such employer the same evidence of age of such child as is required upon the issuance of an employment certificate, and the employer furnishing such evidence shall not be required to furnish any further evidence of the age of the child: *Provided*, That nothing herein contained shall be construed as permitting any of the acts prohibited by other sections of this chapter or as in any way exempting such employer from prosecution under other sections of this chapter.

SEC. 13007-2. In case any employer shall fail to produce and deliver to a factory inspector, truant officer, or other officer charged with the enforcement of this act, within 10 days after demand made pursuant to section 13007-1 of this act, the evidence of age therein required, proof of the making of such demand and of such failure to produce and file such evidence shall be prima facie evidence of the illegal employment of such child in any prosecution brought therefor.

SEC. 13007-3. No child under the age of 18 years shall be employed, permitted, or suffered to work (1) in or about or in connection with blast furnaces, docks, or wharves; (2) in the outside erection or repair of electric wires; (3) in the running or management of elevators, lifts, or hoisting machines or dynamos; (4) in oiling or cleaning machinery in motion; (5) in the operation of emery wheels or any abrasive, polishing, or buffing wheel where articles of the baser metals or iridium are manufactured; (6) at switch tending; (7) gate tending; (8) track repairing; (9) or as brakeman, fireman, engineers, motormen, or conductors upon railroads; (10) or as railroad telegraph operators; (11) as pilots, firemen, or engineers upon boats and vessels; (12) or in or about establishments wherein nitroglycerin, dynamite, dualin, guncotton, gunpowder, or other high or dangerous explosives are manufactured, compounded, or stored; (13) or in the manufacture of white or yellow phosphorus or phosphorous matches; (14) or in any distillery, brewery, or any other establishment where malt or alcoholic liquors are manufactured, packed, wrapped, or bottled; (15) or in any hotel, theater, concert hall, place of amusement, or any other establishment where intoxicating liquors are sold; (16) nor any boy under 16 or girl under 18 in any theater or other place of amusement, except on the stage thereof when not otherwise prohibited by law.

SEC. 13007-4. The State board of health may, from time to time, after hearing duly had, determine whether or not any particular trade, process of manufacture, or occupation, in which the employment of children under 18 years of age is not already forbidden by law, or any particular method of carrying on such trade, process of manufacture, or occupation is sufficiently dangerous to the lives or limbs or injurious to the health or morals of children under 18 years of age to justify their exclusion therefrom.

No child under 18 years of age shall be employed, permitted, or suffered to work in any occupation thus determined to be dangerous or injurious to such children. There shall be a right of appeal to the common pleas court from any such determination.

SEC. 13007-5. No person under 21 years of age shall be employed, permitted, or suffered to work in, about, or in connection with any saloon or barroom where intoxicating liquors are sold or to handle intoxicating liquors in any way.

SEC. 13007-6. No female under 21 years of age shall be employed, permitted, or suffered to work in or about any (1) mine, (2) quarry, (3) or coal breaker, except in the office thereof, (4) or in oiling or cleaning machinery while in motion.

SEC. 13007-7. It shall be the duty of factory inspectors, truant officers, and other officers charged with the enforcement of laws relating to the employment of minors to make complaints against any person violating any of the provisions of this act and to prosecute the same.

This shall not be construed as a limitation upon the right of other persons to make and prosecute such complaints.

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provided, in a suitable place, not at or near a penal institution, a truant school for the instruction and training of children committed thereto as habitual truants, absentees, or school offenders. The county commissioners of two or more counties may, at the expense of said counties, establish and maintain a union truant school which shall be organized and controlled by the chairmen of the county commissioners of said counties. The chairmen of the respective boards of county commissioners of the counties of Norfolk, Bristol, and Plymouth, having the management of the Norfolk, Bristol, and Plymouth union truant school, shall each be paid the sum of $100 annually by said counties, respectively. The county commissioners of the counties of Barnstable, Berkshire, Franklin, Hampshire, Dukes, and Nantucket shall assign a truant school established by law as the place for the instruction and training of children committed within their respective counties as habitual truants, absentees, or school offenders, and shall pay for their support in said school such reasonable sum as the county commissioners having control of said school may determine. For the purposes of this chapter the parental school of the city of Boston shall be deemed the county truant school of the county of Suffolk, and commitments from the towns of Revere and Winthrop and the city of Chelsea shall be to the truant school for the county of Middlesex. The city or town from which an habitual truant, absentee, or school offender is committed to a county truant school shall pay to the county within which it is located $1 a week toward his support; but the towns of Revere and Winthrop and the city of Chelsea shall pay to the county of Middlesex, for the support of each child committed to the truant school of said county, $2.50 a week, and such additional sums for each child as shall cover the actual cost of maintenance.

VISITATION BY STATE BOARD OF EDUCATION AND BY THE STATE BOARD OF CHARITY.

SEC. 2. County truant schools shall be subject to visitation by the board of education and by the State board of charity, and said boards shall report thereon annually to the general court.

HABITUAL TRUANTS.

SEC. 3. A child between 7 and 14 years of age who willfully and habitually absents himself from school contrary to the provisions of section 1 of chapter 44 shall be deemed to be an habitual truant, and unless placed on probation as provided in section 7 of this chapter, may, upon complaint by a truant officer and conviction thereof, if a boy, be committed to a county truant school, and, if a girl, to the State industrial school for girls; but if the girl is under 12 years of age she shall be committed to the custody of the State board of charity, if they so request, for not more than two years.

HABITUAL ABSENTEES.

SEC. 4. A child between 7 and 16 years of age who may be found wandering about in the streets or public places of any city or town, having no lawful occupation, habitually not attending school, and growing up in idleness and ignorance, shall be deemed to be an habitual absentee, and, unless placed on probation as provided in section 7, may, upon complaint by a truant officer or any other person and conviction thereof, if a boy, be committed to a county truant school, or to the Lyman school for boys, and, if a girl, to the State industrial school for girls; but if the girl be under 12 years of age she shall be committed to the custody of the State board of charity, if they so request, for not more than two years.

HABITUAL SCHOOL OFFENDERS.

SEC. 5. A child under 14 years of age who persistently violates the reasonable regulations of the school which he attends, or otherwise persistently misbehaves therein, so as to render himself a fit subject for exclusion therefrom, shall be deemed to be an habitual school offender, and, unless placed on probation as provided in section 7, may, upon complaint by a truant officer and conviction thereof, if a boy, be committed

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to a county truant school, or to the Lyman school for boys, and, if a girl, to the State industrial school for girls; but if the girl be under 12 years of age she shall be committed to the custody of the State board of charity, if they so request, for not more than two years.

SUPPORT OF INMATES OF TRUANT SCHOOLS.

SEC. 6. The court or magistrate by whom a child has been committed to a county truant school may make an order relative to the payment by his parents to the county of the cost of his support while in said school, and may from time to time revise and alter such order or make a new order as the circumstances of the parents may justify.

TRUANTS ON PROBATION.

SEC. 7. A court or magistrate by whom a child has been convicted of an offense under the provisions of this chapter may place such a child on probation under the oversight of a truant officer of the city or town in which the child resides, or of a probation officer of said court, for such period and upon such conditions as said court or magistrate may deem best; and if, within such period, the child violates the conditions of his probation, such truant officer or probation officer may, without warrant or other process, take the child before the court, and the court may thereupon sentence him or may make any other lawful disposition of the case.

PERMITS TO BE AT LIBERTY; ALSO RELEASES.

SEC. 8. County commissioners, if they think it will be for the best interest of any child who has been committed to a county truant school under their control, after notice and an opportunity to be heard has been given to the superintendent of schools or, if there is no superintendent, to the school committee of the city or town from which such child was committed to said school, may permit him to be at liberty upon such conditions as said commissioners may deem best; or, with the approval of the court which imposed the sentence, they may discharge him from said school; and upon such parole or discharge they shall make an entry upon their records of the name of such child, the date of parole or discharge and the reason therefor; and a copy of such record shall be transmitted to the court or magistrate by whom such child was committed and to the school committee of the city or town from which he was committed. If such child, in the opinion of said commissioners, violates the conditions of his parole at any time previous to the expiration of the term for which he was committed to said school, such parole may be revoked. If a superintendent of schools or a school committee furnishes evidence satisfactory to said commissioners of the violation by a child of the conditions of his parole, said commissioners shall revoke such parole, and may thereupon issue an order directed to the truant or police officers of any city or town to arrest such child wherever found and return him to said school. Such officer shall arrest such child and return him to said school, where he shall be held, subject to the provisions of this chapter, for the residue of the term of the original sentence. The expense of such arrest and return, so far as approved by the commissioners, shall be paid by the county or counties maintaining said school. A child who has been committed to a county truant school, whether he be confined at the county truant school or on parole as provided in this section, shall be discharged from the custody and care of such school upon his becoming 16 years of age. Releases from the parental school of the city of Boston shall be governed by the provisions of chapter 514 of the acts of the year 1896, and shall be made by the trustees for children, who shall have and exercise the powers given by said chapter to the institutions commissioner of said city.

TEMPORARY RELEASE FROM TRUANT SCHOOL.

SEC. 9. If a near relation of a child who is confined on a sentence as an habitual truant, habitual absentee, or habitual school offender dies or is seriously ill, any member of the board of trustees or county commissioners having charge of the insti-

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tution may order such child to be released for a specified time, either with or without the custody of the superintendent or other officer, and may revoke, extend, or otherwise modify such order. The expenses incurred in serving such order shall be approved and paid in the same manner as other expenses of the institution in which the child is confined.

DISPOSITION OF VICIOUS INMATES.

SEC. 10. An inmate of a county truant school or of the parental school of the city of Boston who persistently violates the reasonable regulations thereof, or is guilty of indecent or immoral conduct, or otherwise grossly misbehaves, so as to render himself an unfit subject for retention therein, may, upon complaint by the officer in control of said school and conviction thereof, if under 15 years of age, be committed to the Lyman School for Boys; if over 15 years of age, to the Massachusetts Reformatory. If a girl who is committed to the custody of the State board of charity under section 3, 4, or 5 of this chapter proves unmanageable in a private family, she may be committed by the State board of charity to the State industrial school for girls.

SUMMONSES, WARRANTS, JURISDICTION.

SEC. 11. Police, district, and municipal courts and trial justices shall have jurisdiction of offenses arising under the provisions of section 1 of chapter 44 and under the provisions of this chapter. A summons or warrant issued by such court or justice may be served, at the discretion of the court or magistrate, by a truant officer or by any officer qualified to serve criminal process. Upon complaint against a child for any such offense the parents, guardian, or custodian of the child shall be notified as is required by section 17 of chapter 86.[1] A child against whom complaint as a habitual absentee is brought by any other person than a truant officer shall not be committed until notice and an opportunity to be heard have been given to the State board of charity.

TRUANT OFFICERS.

SEC. 12. The school committee of every city and town shall appoint and fix the compensation of one or more truant officers, who may be either male or female as the committee may decide, and shall make regulations for their government. Truant officers shall not receive fees for their services. The school committee of two or more cities or towns may employ the same truant officers.

DUTIES OF TRUANT OFFICERS.

SEC. 13. Truant officers shall inquire into all cases arising under the provisions of sections 1 and 6 of chapter 44 and sections 3, 4, and 5 of this chapter, and may make complaints and serve legal processes issued under the provisions of this chapter. They shall have the oversight of children placed on probation under the provisions of section 7. A truant officer may apprehend and take to school, without a warrant, any truant or absentee found wandering about in the streets or public places thereof.

COMMITMENT OF HABITUAL TRUANTS, HABITUAL ABSENTEES, AND HABITUAL SCHOOL OFFENDERS.

Chapter 389, acts of 1906, provides as follows:

SECTION 1. Habitual truants, habitual absentees, and habitual school offenders shall be committed to truant schools, however named, for the instruction and training of children, and now provided for by the several counties, and not to any other institution or place.

SEC. 2. This act shall not apply to the Plummer Farm School of Reform for Boys, at Winter Island, in Salem.

[1] Of the Revised Laws. See also chapter 314, section 4, acts of 1906.

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EMPLOYMENT OF WOMEN AND CHILDREN.

[Chapter 514, Acts of 1909, as amended.]

GENERAL PROVISIONS.

SEC. 17. The following words and phrases, as used in all laws relative to the employment of labor shall, unless a different meaning is plainly required by the context, have the following meanings:

"Child" or "minor" shall mean a person under 18 years of age, except that in regard to the compulsory attendance of illiterate minors at day or evening schools, the word "minor" shall mean a person under the age of 21 years.

"Factory" shall mean any premises where steam, water, or other mechanical power is used in aid of any manufacturing process there carried on.

"Mercantile establishments" shall mean any premises used for the purposes of trade in the purchase or sale of any goods or merchandise, and any premises used for the purposes of a restaurant or for publicly providing and serving meals.

"Public building" shall mean any building or premises used as a public or private institution, church, theater, public hall, place of public entertainment, resort, or assemblage.

Schoolhouse" shall mean any building or premises in which public or private instruction is afforded to not less than 10 pupils at one time.

"Workshop" shall mean any premises, room, or place, which is not a factory as above defined, wherein manual labor is exercised by way of trade or for purposes of gain in or incidental to a process of making, altering, repairing, ornamenting, finishing, or adapting for sale any article or part of an article, and to which or over which premises, room, or place the employer of the persons working therein has the right of access or control; but the exercise of such manual labor in a private house or private room by the family dwelling therein or by any of them or if a majority of the persons therein employed are members of such family, shall not of itself constitute such house or room a workshop within this definition.

WHEN CHILDREN UNDER 14 AND CHILDREN OVER 14 AND UNDER 16 MAY NOT BE EMPLOYED.

SEC. 56. No child under the age of 14 years, and no child who is over 14 and under 16 years of age who does not have a certificate as required by the four following sections certifying to the child's ability to read at sight and to write legibly simple sentences in the English language, shall be employed in any factory, workshop, or mercantile establishment. The ability to read at sight and to write legibly simple sentences in the English language shall be construed as meaning such ability to read and write as is required for admission to the fourth grade of the public schools of the city or town in which such minor lives. No child under the age of 14 years shall be employed at work performed for wages or other compensation, to whomsoever payable, during the hours when the public schools of the city or town in which he resides are in session, or be employed at work before 6 o'clock in the morning or after 7 o'clock in the evening. But minors to whom the provisions of this section apply shall be permitted to work on Saturdays between the hours of 6 in the morning and 7 in the evening in mercantile establishments.

PROVISIONS RELATING TO EMPLOYMENT OF CHILDREN UNDER 16 AND MINORS.

SEC. 57. No child under 16 years of age shall be employed in a factory, workshop, or mercantile establishment unless his employer procures and keeps on file, accessible to the truant officers of the city or town, and to the district police and inspectors of factories and public buildings, an age and schooling certificate and keeps two complete lists of all such minors employed therein, one on file, and one conspicuously posted near the principal entrance of the building in which such children are em-

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ployed, and also keeps on file and sends to the superintendent of schools, or, if there is no superintendent, to the school committee, a complete list of the names of all minors employed therein who can not read at sight and write legibly simple sentences in the English language.

AGE AND SCHOOLING CERTIFICATES OF MINORS.

SEC. 58. An age and schooling certificate shall be approved only by the superintendent of schools or by a person authorized by him in writing, or, if there is no superintendent of schools, by a person authorized by the school committee; but no member of a school committee or other person authorized as aforesaid shall approve such certificate for any minor then in or about to enter his own employment or the employment of a firm or corporation of which he is a member, officer, or employee. The printed form of such age and schooling certificate shall be provided by the chief of the district police. No such certificate shall be approved by any person unless he is satisfied that the minor therein named is able to read at sight and to write legibly simple sentences in the English language, as is required for admission to the fourth grade of the public schools of the city or town in which such minor lives, nor until such person has received a certificate signed by a physician, as provided in chapter 502 of the act of the year 1906 and acts passed in amendment thereof, or by a physician appointed by the school committee, stating that said minor has been examined by him and in his opinion is in sufficiently sound health and physically able to perform the work which the minor intends to do: *Provided, however*, That the age and schooling certificate may be approved and issued without a physician's certificate if there shall be on file in connection with the public schools a written record in regard to the child's physical condition made within one year and the person authorized to approve said age and schooling certificate after having examined such record shall certify that in his opinion said minor is in sufficiently sound health and physically able to perform the work which the minor intends to do. The person who approves the certificate may administer the oath provided for therein, but no fee shall be charged therefor.

SEC. 59. An age or schooling certificate shall not be approved unless satisfactory evidence is furnished by a certificate of birth or baptism of such minor, or by the register of birth of such minor with a city or town clerk, that such minor is of the age stated in the certificate, except that other evidence, under oath, may be accepted in the case the superintendent or person authorized by the school committee, as provided in the preceding section, decides that neither the certificate of birth or baptism, nor the register of birth is available for the purpose. The certificate of the superintendent of the Lyman School for Boys or of the State industrial school for girls given to a child who has been an inmate of such school, shall be sufficient evidence as to the age and ability to read at sight and to write legibly simple sentences in the English language.

EMPLOYMENT TICKET AND AGE AND SCHOOLING CERTIFICATE.

SEC. 60. The age and schooling certificate of a minor under 16 years of age shall not be approved and signed until he presents to the person who is authorized to approve and sign it an employment ticket duly filled out and signed. A duplicate of each age and schooling certificate shall be filled out and shall be kept on file by the school committee. Any explanatory matter may, in the discretion of the school committee or superintendent of schools, be printed with such certificate. The employment ticket and the age and schooling certificate, shall be separately printed and shall be filled out, signed, and held or surrendered as indicated in the following forms:

EMPLOYMENT TICKET, ST. 1909, c. , § .

When [name of minor] , height [feet and inches] , complexion [fair or dark] , hair [color] , presents an age and schooling certificate duly signed, I intend to employ [him or her].

(Town or city and date.)

(Signature of intending employer or agent.)

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AGE AND SCHOOLING CERTIFICATE. ST. 1909, C. . § .

This certifies that I am the [father, mother, guardian, or custodian] of [name of minor] , and that [he or she] was born at [name of city or town] , in the county of [name of county, if known] , and State [or country] of , on the [day and year of birth] , and is now [number of years and months] old.

(Signature of father, mother, guardian, or custodian.)

(City or town and date.)

Then personally appeared before me the above named [name of person signing] , and made oath that the foregoing certificate by [him or her] signed is true to the best of [his or her] knowledge and belief. I hereby approve the foregoing certificate of [name of minor] , height [feet and inches] , complexion [fair or dark] , hair [color] , having no sufficient reason to doubt that [he or she] is of the age therein certified. I hereby certify and am satisfied that [he or she] can read at sight and can write legibly simple sentences in the English language. I further certify that in my opinion (or in the opinion of the physician by whom said minor has been examined in accordance with section 58 of the above chapter) he (or she) is in sufficiently sound health and physically able to perform the work which he (or she) intends to do.

This certificate belongs to [name of minor in whose behalf it is drawn] , and is to be surrendered to [him or her] whenever [he or she] leaves the service of the corporation or employer holding the same; but if not claimed by said minor within 30 days after such time, it shall be returned to the superintendent of schools, or, if there is no superintendent of schools, to the school committee.

(Signature of person authorized to approve and sign with official character or authority.)

(City or town and date.)

In the case of a minor who can not read at sight and write legibly simple sentences in the English language the certificate shall continue as follows, after the word "language":

I hereby certify that [he or she] is regularly attending the [name] public evening school. This certificate shall continue in force only so long as the regular attendance of said minor at the evening school is indorsed weekly by a teacher thereof.

PENALTY FOR CERTIFYING TO FALSE STATEMENT.

Whoever, being authorized to sign the foregoing certificate, knowingly certifies to any materially false statement therein shall be punished by a fine of not more than $50.

ILLEGAL EMPLOYMENT OF MINORS AND DUTIES OF TRUANT OFFICERS.

SEC. 61. Whoever employs a minor under the age of 16 years, and whoever procures or, having under his control a minor under such age, permits such minor to be employed in violation of the provisions of sections 56 and 57 of this act, shall for each offense be punished by a fine of not more than $300, or by imprisonment for not more than six months, or by both such fine and imprisonment; and whoever continues to employ a minor in violation of the provisions of either of said sections, after being notified thereof by a truant officer or by an inspector of factories and public buildings, shall for every day thereafter while such employment continues be punished by a fine of not less than $20 nor more than $100, or by imprisonment for not more than six months; and whoever forges, or procures to be forged, or assists in forging a certificate of birth of such minor, and whoever presents or assists in presenting a forged certificate of birth to a school committee or to the person authorized by law to receive certificates, for the purpose of fraudulently obtaining the school certificate mentioned in section 60, shall be punished by a fine of not less than $100 nor more than $500, or by imprisonment for not less than three months nor more than one year, or by both such fine and imprisonment.

SEC. 62. Truant officers may visit the factories, workshops, and mercantile establishments in their several cities and towns and ascertain whether any minors are employed therein contrary to the provisions of this act, and shall report any cases of such illegal employment to the school committee and to the chief of the district

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police or to the inspector of factories and public buildings. Inspectors of factories and public buildings shall visit all factories, workshops, and mercantile establishments within their respective districts and ascertain whether any minors are employed therein contrary to the provisions of this act, and shall enter complaint against whoever is found to have violated any of said provisions. An inspector of factories and public buildings who knowingly and willfully violates any provision of this section may be punished by a fine of not more than $100.

SEC. 63. A truant officer may apprehend and take to school, without a warrant, any minor under the age of 16 years who is employed in any factory, workshop, or mercantile establishment in violation of the provisions of sections 56 and 57 of this act, and such truant officer shall forthwith report to the police, district, or municipal court or trial justice within whose judicial district the illegal employment occurs, the evidence in his possession relating to the illegal employment of any child so apprehended, and shall make complaint against whomever the court or trial justice may direct. A truant officer who knowingly and willfully violates any provision of this section may be punished by a fine of not more than $100 for each offense.

TRUANT OFFICERS AND INSPECTORS OF FACTORIES.

SEC. 64. Inspectors of factories and public buildings and truant officers may require that the age and schooling certificates and lists of minors who are employed in factories, workshops, or mercantile establishments shall be produced for their inspection. A failure to produce to an inspector of factories and public buildings or to a truant officer an age and schooling certificate or list required by law shall be prima facie evidence of the illegal employment of any person whose age and schooling certificate is not produced or whose name is not so listed. A corporation or other employer or any agent or officer thereof who retains an age and schooling certificate in violation of the provisions of said certificate shall be punished by a fine of not less than $10 nor more than $100.

SEC. 65. Police, district, and municipal courts and trial justices shall have jurisdiction of offenses arising under the provisions of the four preceding sections. A summons or warrant issued by any such court or justice may be served, at the discretion of the court or magistrate, by an inspector of factories and public buildings, or by a truant officer, or by any officer qualified to serve criminal process.

ILLITERATE MINORS MUST ATTEND EVENING SCHOOLS.

SEC. 66. While a public evening school is maintained in the city or town in which any minor [1] resides who is over 14 years of age and who does not have a certificate signed by the superintendent of schools, or by the school committee, or by some person acting under authority thereof, certifying to his ability to read at sight and write legibly simple sentences in the English language, no person shall employ him, and no parent, guardian, or custodian shall permit him to be employed unless he is a regular attendant at such evening school or at a day school; but upon presentation by him of a certificate signed by a registered practising physician and satisfactory to the superintendent of schools, or, if there is no such superintendent, to the school committee, showing that his physical condition would render such attendance in addition to daily labor prejudicial to his health, said superintendent or school committee shall issue a permit authorizing his employment for such period as said superintendent or school committee may determine. Said superintendent or school committee, or teachers acting under authority thereof, may excuse any absence from such evening school which arises from justifiable cause. Any minor not holding such

[1] For law relating to minors over 14 and under 16 years of age see sec. 1, as amended, chap. 44, R. L., p. 121 of this pamphlet, and sec. 56, chap. 514, acts of 1909, p. 125, of this pamphlet.

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certificate shall furnish to his employer a record of his school attendance each week while the evening school is in session, and when said record shows unexcused absences from the sessions his attendance shall be deemed irregular according to this act. Whoever employs a minor in violation of the provisions of this section shall forfeit not more than $100 for each offense to the use of the evening schools of such city or town. A parent, guardian, or custodian who permits a minor under his control to be employed in violation of the provisions of this section shall forfeit not more than $20 to the use of the evening schools of such city or town.

PUBLIC EXHIBITION OF CHILDREN.

SEC. 76. No person shall employ, exhibit, or sell, apprentice, or give away a child under 15 years of age for the purpose of employing or exhibiting him in dancing on the stage, playing on musical instruments, singing, walking on a wire or rope, or riding or performing as a gymnast, contortionist, or acrobat in a circus, theatrical exhibition, or in any public place, or cause, procure, or encourage such child to engage therein; but the provisions of this section shall not prevent the education of children in vocal and instrumental music or dancing or their employment as musicians in a church, chapel, school, or school exhibition, or prevent their taking part in any festival, concert, or musical exhibition upon the special written permission of the mayor and aldermen of a city or of the selectmen of a town. Whoever violates the provisions of this section shall be punished by a fine of not more than $200 or by imprisonment for not more than six months.

SEC. 77. A license shall not be granted for a theatrical exhibition or public show in which children under 15 years of age are employed as acrobats or contortionists or in any feats of gymnastics or equestrianism, or in which such children who belong to the public schools are employed or allowed to take part as performers on the stage in any capacity, or if, in the opinion of the board authorized to grant licenses, such children are employed in such a manner as to corrupt their morals or impair their health; but the provisions of this section shall not prevent the granting of special permission authorized by the preceding section.

LICENSING OF MINORS, BY SCHOOL COMMITTEES, TO ENGAGE IN CERTAIN OCCUPATIONS IN CITIES.

SECTION 17, chapter 65, Revised Laws. The mayor and aldermen or selectmen may make regulations relative to the exercise of the trade of bootblacking by minors and to the sale by minors of any goods, wares, or merchandise the sale of which is permitted by section 15, and may prohibit such sales or such trade, or may require a minor to obtain from them a license therefor to be issued on terms and conditions prescribed in such regulations: *Provided*, That in the case of persons under the age of 14 years in the cities of the Commonwealth the foregoing powers shall be vested in and exercised by the school committees of said cities. A minor who sells such articles or exercises such trade without a license if one is required or who violates the conditions of his license or any of the provisions of said regulations shall be punished by a fine of not more than $10 for each offense. Any person who, having a minor under his control, knowingly permits him to violate the provisions of this act, and any person who procures or employs a minor to violate the provisions of this act, and any person who either for himself or as agent of any other person or of any corporation knowingly furnishes or sells to any minor any of the articles above referred to with knowledge that said minor intends to sell said articles in violation of the provisions of this act, and after having received written notice from the *school committee* that the minor is unlicensed, shall be punished by a fine of not more than $200 or by imprisonment for not more than six months. Truant and police officers shall enforce the provisions of this chapter.

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EMPLOYMENT OF CERTAIN MINORS IN FACTORIES, WORKSHOPS, AND MERCANTILE ESTABLISHMENTS.

Chapter 310, Acts of 1911, provides as follows:

SECTION 1. No illiterate minor between the age of 16 and 21 years shall be employed in a factory, workshop, mechanical or mercantile establishment unless his employer procures and keeps on file, accessible to the truant officers of the city or town and to the district police and inspectors of factories and public buildings, a certificate showing that such minor is 16 years of age or over. Said certificate shall give the place and date of birth of such minor and his personal description. The printed form of the certificate shall be provided by the chief of the district police and shall be approved by the attorney general.

ADDITIONAL DUTIES OF TRUANT OFFICERS RELATIVE TO CARE OF INDIGENT AND NEGLECTED CHILDREN.

Chapter 356, Acts of 1904, provides as follows:

SECTION 1. It shall be the duty of *truant officers in cities* and of the overseers of the poor in towns, as often as may be deemed necessary by them, to make diligent search throughout their respective cities and towns for children under the age of 16 who are suffering want through poverty, privation, or from the neglect of their parents or guardians, or of any other persons having them in charge or from any cause whatsoever.

SEC. 2. Where such children are found without parents or guardians or in charge of such parents or guardians as in the judgment of the officers or overseers aforesaid are unfit to care for children by reason of mental incapacity, dissolute habits, or poverty, it shall be the duty of the officers and overseers aforesaid to provide for the temporary care of such children until proceedings may be had against them if necessary, according to the provisions of chapter 334 of the acts of the year 1903.

SEC. 3. Reasonable expenses incurred by the officers and overseers aforesaid in furnishing aid as provided by this act shall be paid by the city or town wherein the persons have legal settlements, and, if they are without settlement, by the Commonwealth, after approval by the State board of charity; and notice in writing shall be sent to the place of settlement or, if such persons are unsettled, to the State board of charity as is otherwise provided by law.

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1913.

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No. 55. Legislation and judicial decisions relating to education, October 1, 1909, to October 1, 1912, James C. Boykin and William R. Hood.
No. 56. Some suggestive features of the Swiss school system. William Knox Tate.
No. 57. Elementary education in England, with special reference to London, Liverpool, and Manchester. I. L. Kandel.
No. 58. Educational system of rural Denmark. Harold W. Foght.
No. 59. Bibliography of education for 1910–11.
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No. 2 Compulsory school attendance.

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INTRODUCTORY NOTES.

The following are representative books and articles selected from the titles in the accompanying list, the numbers in parentheses referring to the numbers of the full entries:

Monroe, Cyclopedia of education, volume 5 (6); Graves' History of education in modern times (7); Ward, Montessori method and the American school (61); Betts and Hall, Better rural schools (62); Dabney, Student body of University of Cincinnati (90); Hibben, Type of graduate scholar (95); Dutton, Investigation of school systems (106); Gill, A new citizenship (111); Richards, Study of industries for purposes of vocational education (144); Grant and Hodgson, Case for coeducation (155); Johnston, Library as a university factor (167).

Of the publications listed, only those named in the section headed "Bureau of Education: Recent publications" are available for free distribution by this office. All others may ordinarily be obtained from their respective publishers, either directly or through a dealer, or in the case of an association publication, from the secretary of the issuing organization. A list of periodicals indexed, with places of publication, may be found at the end of this bulletin.

Books, pamphlets, etc., intended for inclusion in this record should be sent to the library of the Bureau of Education, Washington, D. C.

BOOKS, PAMPHLETS, PERIODICAL ARTICLES.

PUBLICATIONS OF ASSOCIATIONS.

1 **Association of American medical colleges.** Proceedings of the twenty-third meeting, held at Chicago, February 26, 1913. 75 p. 8°. (F. C. Zapffe, secretary-treasurer, Chicago, Ill.)

Contains: 1. Egbert Lefevre: Some problems of medical education, p. 5-17. 2. C. R. Bardeen: Divided schools, p. 22-28. 3. W. C. Borden: Medical college organization, p. 29-38.

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2. **Lake Mohonk conference of friends of the Indian and other dependent peoples.** Report of the thirty-first annual conference . . . October 22, 23, and 24, 1913. Published by the Lake Mohonk conference of friends of the Indian and other dependent peoples, 1913. 224 p. 8°. (H. C. Phillips, secretary, Mohonk Lake, N. Y.)

   Contains: 1. Paul Monroe: What the Philippine school system is doing for Philippine freedom, p. 96–103. 2. S. W. Eckman: Importance of educational work in Porto Rico, p. 164–69. 3. J. W. Osborn: Limitations of educational facilities in the Philippines, p. 174–75.

3. **National league of nursing education.** Proceedings of the nineteenth annual convention . . . held at Atlantic City, N. J., June 23, 24, 25, 1913. Baltimore, Williams & Wilkins company, 1913. 114 p. 8°. (Sara E. Parsons, secretary, Boston, Mass.)

   Contains: 1. Isabel M. Stewart: Report of the committee for approaching women's colleges, p. 35–38. 2. Mrs. E. F. S. Smith: Factors of elimination in schools for nurses, p. 54–59. 3. Amy P. Miller: Report of conference on preliminary teaching, p. 65–68.

4. **South Carolina state teachers' association.** Proceedings of the forty-first annual meeting . . . held at Columbia, S. C., March 13, 14 and 15, 1913. Columbia, S. C., State co., printers, 1914. 51 p. 8°. (L. T. Baker, secretary, Columbia, S. C.)

   Contains: 1. R. C. Burts: President's address, p. 26–31. 2. O. B. Martin: Teaching out of school, p. 32–35. 3. J. E. Swearingen: Suggestions for improving the teaching profession in South Carolina, p. 36–39.

5. **Vermont state teachers' association.** Report of the sixty-third annual convention . . . Rutland, Vt., October 24, 25 and 26, 1912. Bellows Falls, Vt., P. H. Gobie press, 1913. 129 p. 12°. (Amy B. Drake, secretary, St. Johnsbury, Vt.)

   Contains: 1. G. S. Wright: President's address, p. 23–30. 2. Flexible grading and promotions, p. 30–37. 3. Caroline M. Griswold: Co-operation of parents and teachers, p. 81–85. 4. A. F. Stone: What business demands of the schools, p. 86–92. 5. T. F. Collier: The history teacher's opportunity, p. 93–102. 6. Mrs. H. K. Whitaker: What society demands of the schools, p. 109–14.

GENERAL REFERENCE.

6. A cyclopedia of education, ed. by Paul Monroe. Volume 5. Pol–Zwi. New York, The Macmillan company, 1913. xiii, 892 p. illus. 4°.

   Analytical indexes: p. 855–92.
   This volume completes the work.

EDUCATIONAL HISTORY.

7. **Graves, Frank Pierrepont.** A history of education in modern times. New York, The Macmillan company, 1913. xv, 410 p. 12°.

8. **Kerr, John.** Scottish education, school and university, from early times to 1908; with an addendum 1908–1913. Cambridge, University press, 1913. xvi, 454 p. 8°.

CURRENT EDUCATIONAL CONDITIONS.

9. **Armani, Tarquinio.** Il liceoginnasio moderno. Rivista d'Italia, 2: 641–72, November 15, 1913.

   Justifies the place of this recent development in the Italian educational system.

10. **Bell, Clair H.** Experiences of an American exchange teacher in Germany. Educational review, 47: 28–56, January 1914.

    Work of the writer consisted in teaching conversational English to small volunteer groups of boys from the four highest classes, viz, Untersekunda, Obersekunda, Unterprima, and Oberprima, in the Musterschule, Frankfurt a. M., Germany. Says that during his school course the German boy gains about two years in development over the American boy.

11. **Corson, O. T.** The Ohio school survey. Ohio educational monthly, 63: 1–8, January 1914.

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12. **Whitehouse, John Howard.** A national system of education. Cambridge, University press, 1913. 92 p. 8°.
Discusses conditions and prospects in England.

PEDAGOGICS AND DIDACTICS.

13. **Bruce, H. Addington.** New theories in education. Outlook, 106: 144–48, January 17, 1914.
Claims that "the real trouble is that education, in the sense of formal, conscious guidance and instruction, does not begin soon enough."

14. **Clendenen, Taylor C.** Value of supervised study. School news and practical educator, 27: 194–95, January 1914.

15. **Howe, Oliver H.** Cultural education. Education, 34: 320–27, January 1914.
Shows the advantages of cultural education, to supplement practical studies. It makes for the development of character; for a breadth of sympathy with life in all its forms.

16. **Kiroul, Paul.** Le système de concentration dans l'enseignement. (Études didactiques) Ostende, Belgium, Bureau international de documentation éducative, 1913. 10 p. 8°. (Bibliothèque internationale d'éducation)
Describes a Netherlandish experiment of the "education for life" type, similar to the Rock Hill experiment in the United States.

17. **Laird, Sinclair.** Meaning of experimental education. School, 2: 293–97, January 1914.

18. **McManis, John T.** The locus of studies. Educational bi-monthly, 8:95–105, December 1913.
Claims that the locus of studies has a twofold aspect. In the first place we must see that the subject fits into the stage of growth of each individual child, in the second place, the locus of studies brings us back to the old practice of "Correlation of studies."

19. Neue ziele und wege der pädagogik. Pädagogische zeitung, 42: 925–7, December 11, 1913.
Report of Dr. Brahn's address before the Pädagogische Zentrale, in which the attempt is made to place current tendencies in pedagogy historically. Suggestive.

20. **Reinach, Théodore.** L'éducation athénienne et l'éducation française. Revue pédagogique, 63: 531–56, December 1913.

21. **Repplier, Agnes.** Popular education. Atlantic monthly, 113: 1–8, January 1914.
Writer says the theory that "school work must appeal to a child's fluctuating tastes, must attract a child's involuntary attention, does a grievous wrong to the rising generation; yet it is upheld in high places."

22. **Sanders, Frederic W.** The organization of education. Education, 34: 273–82, January 1914.
First article of a series dealing with some "educational postulates and practical suggestions as to the organization of schools."

23. **Smith, Henry Bompas.** Education as the training of personality; an inaugural lecture. Manchester, University press, 1913. 38 p. 12°. (Manchester university lectures. no. XVII)

24. **Springer, F. W.** Fundamentals in education. Bulletin of the Society for the promotion of industrial education, 4: 37–47, December 1913.
Discusses the subject under the following headings: Men and women teachers, Careers, Educators, and School trend.

25. **Wilson, Albert.** Does the child start fair? Parents' review, 25: 1–12, January 1914.

EDUCATIONAL PSYCHOLOGY, CHILD STUDY.

26. Do you want one of these [10] boys? They have been examined for the Delineator by Dr. Gustave A. Blumenthal, vocational expert for the District of Columbia. He gives a character reading of each. Delineator, 84: 7, February 1914. illus.

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27. **Hinkle, E. C.** Tests for efficiency in arithmetic. Educational bi-monthly, 8: 123–35, December 1913.
Tells of the Rice test and the Stone test and gives results of their use in some experiments.

28. **Kohs, Samuel C.** The Binet test and the training of teachers. Training school bulletin, 10: 113–17, January 1914.
The story of training fifty-eight teachers to use the Binet test.

29. **Mead, Cyrus D.** The age of walking and talking in relation to general intelligence. Pedagogical seminary, 20: 460–84, December 1913.
Bibliography: 483–84.

30. **Morse, Josiah.** A comparison of white and colored children measured by the Binet scale of intelligence. Popular science monthly, 84: 75–79, January 1914.
Measurement with the Binet scale, as revised by Dr. H. H. Goddard. Tests made by Alice C. Strong on white and colored school children of Columbia, S. C. Concludes that "negro children from 6 to 12 and possibly 15 years are mentally different, and also younger than southern white children of corresponding age, and this condition is partly due, at least, to causes that are native or racial."

31. **Strong, Alice C.** Three hundred fifty white and colored children measured by the Binet-Simon scale of intelligence: a comparative study. Pedagogical seminary, 20: 485–515, December 1913.
Bibliography: p. 512–15.
The children tested were in the public schools of Columbia, S. C.

SPECIAL METHODS OF INSTRUCTION.

32. **Bailey, Carolyn Sherwin.** For the story teller; story telling and stories to tell. Springfield, Mass., Milton Bradley company, 1913. 261 p. 8°

33. **Mac Munn, Norman.** Differentialism; a new method of class self-teaching. London, W. H. Smith & son [1913] 27 p. 12°

34. **Schmidt, A.** Der kinematograph als schädiger und helfer in erziehung und unterricht. Pädagogische warte, 20: 1288–96, December 1, 1913.
Hostile to moving pictures under present conditions. Suggests good films to fight bad, and commends circuit films of the "Society for the spread of public education."

35. **Sudeley, —.** The public utility of museums. Nineteenth century, 74: 1211–19, December 1913.
Discusses the educational value of museums. From English standpoint.

SPECIAL SUBJECTS OF CURRICULUM.

36. **Anderson, Madge.** A real school paper. School-arts magazine, 13: 341–47, January 1914.
Tells of the management and success of the "Comet," issued by the West division high school, Milwaukee, Wis.

37. **Appleton, R. B.** Some practical suggestions on the direct method of teaching Latin. Cambridge, W. Heffer & sons ltd., 1913. 83 p. 12°.

38. **Atherton, Lewis.** Literary selections most frequently memorized in the elementary school. Elementary school teacher, 14: 208–20, January 1914.
Statistics based on an examination of 34 selected state, county, and city courses of study.

39. **Bean, C. H.** How English grammar has been taught in America. Education, 34: 301–311, January 1914.

40. **Booth, Mary J.** Material on geography which may be obtained free or at small cost. Journal of geography, 12: 129–51, January 1914.

41. **Chubb, Percival.** The blight of literary bookishness. English journal, 3: 15–27, January 1914.
A paper read before the National council of teachers of English at the annual meeting in Chicago, November 28, 1913.

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42. Commercial education in secondary schools. School world, 16: 16–23, January 1914.

Symposium on the organization, curriculum and teaching of commercial subjects to pupils of high school age, by eight men and women in active work in English secondary education.

43. **Coombs, F. E.** Methods of teaching primary reading. School, 2: 273–76, January 1914.

Classification of the general types to show their development and to allow comparative study.

44. **Coulter, John G.** Organization and content of high school science. School and home education, 33: 171–75, January 1914.

Statement of principles underlying a general science course presented for discussion at the November, 1913, meeting of the Central association of science and mathematics teachers.

45. **Day, Clive.** Commercial and industrial history in secondary schools. History teacher's magazine, 5: 11–16, January 1914.

46. **Gerhard, E. Schultz.** The value of studying German. American education, 17: 204–7, December 1913.

"A scholarly and practical discussion of the subject."

47. **Gillette, John M.** An outline of social study for elementary schools. American journal of sociology, 19: 491–509, January 1914.

48. **Guild, Thacher H.** Suggestions for the high-school play. English journal, 2: 637–46, December 1913.

Reprinted from the April Bulletin of the Illinois association of teachers of English.

Gives a list of some plays which have proved successful at the University of Illinois and the local schools.

49. **Kurtzworth, H. M.** The school publication as a factor in art education. School-arts magazine, 13: 331–40, January 1914.

50. **McKay, Ethel H.** The problem of the primer. School, 2: 277–83, January 1914.

Outline of a method of using the phonic system with the primer in teaching reading.

51. **Moore, Maud.** Reading and phonics. Primary education, 22: 5–9, January 1914.

52. **Syford, Ethel.** Music for children. New England magazine, 48: 544–46, January 1914.

Making the elements of music study more interesting to children. Shows educational value of such study.

53. **Tozier, Josephine.** If Mme. Montessori taught music, this engaging new method, which is phenomenally successful, would probably be her way of doing it. Delineator, 84: 16–17, 61, February 1914.

The author presents "Mlle. Chassavant, a Frenchwoman who has invented a unique music-teaching method. The results of the Chassavant method are to help children to read and execute music as phenomenally as Montessori children read and write their mother tongue. The Chassavant method, moreover, is built on Montessori sense-training, although developed independently of the Montessori method."

54. **Trendley, Mary.** The unification of English history. Education, 34: 295–300, January 1914.

"The chief danger in the study or teaching of history is that we become so wrapped up in details that we lose the larger outlook."

55. **Wicke, E.** Der lehrplan für den gesangunterricht. Archiv für pädagogik, 2: 113–29, December 1913.

Analyses and criticises rather sharply present German practice with respect to music in the public school curriculum.

56. **Young, Charles E.** The other side of the modern language question. Education, 34: 316–19, January 1914.

Registers a plea for laying the stress in our modern language teaching on acquiring ability to read.

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KINDERGARTEN AND PRIMARY SCHOOL.

57. **Binzel, Alma L.** Early education: the kindergarten; the house of childhood; the "exceptional home." Kindergarten review, 24: 271–83, January 1914.

58. **Buck, Philo M., *jr.*** Puero reverentia. Mid-west quarterly, 1: 173–86, January 1914.

59. **Fisher, Dorothy Canfield.** The Montessori manual, in which Dr. Montessori's teachings and educational occupations are arranged in practical exercises or lessons for the mother or the teacher. Chicago, The W. E. Richardson co., 1913. 126 p. illus. 8°.

60. **Pollock, Horatio M.** Notes on the development of the Montessori system. American education, 17: 268–71, January 1914.
Writer says: "Although I have profound admiration for the new pedagogy and its founder, I am convinced that the departure from customary methods is too great to permit its ready adoption in our schools."

61. **Ward, Florence Elizabeth.** The Montessori method and the American school. New York, The Macmillan company, 1913. xvi, 243 p. illus. 12°.

RURAL EDUCATION.

62. **Betts, George Herbert *and* Hall, Otis Earle.** Better rural schools. Indianapolis, The Bobbs-Merrill company [1914] 12 p. l., 512 p. illus. 8°.
CONTENTS.—Part I. The demand for better rural schools.—Part II. The curriculum of the rural school.—Part III. The teacher and the rural school.—Part IV. Consolidation and rural school efficiency.—Part V. Rural school administration.—Part VI. The outlook for rural education.
Bibliography: p. 491–97.

63. **Cubberley, Ellwood P.** Politics and the country-school problem. Educational review, 47: 10–21, January 1914.
Advocates the subordination of the district school system, the erection of the county as the unit for school administration, and the absolute elimination of party politics from the management of the schools. Writer says that Utah and Maryland offer fine examples of a good system of county school organization. Recommends also the supervisory system of Massachusetts, or the Minnesota plan for the reorganization and consolidation of districts.

64. **Culter, Horace M. *and* Stone, Julia M.** The rural school, its methods and management. Boston, New York [etc.] Silver, Burdett and company [°1913] xi p., 1 l., 365 p. incl. front., illus. 12°.
Contains "References." "A working library for country schools": p. 135–142.

65. **Curtis, Henry S.** Educational extension through the rural social center. Education, 34: 283–94, January 1914.
Chapter from a forthcoming book, to be published shortly by Ginn & co., and entitled "Play and recreation in the open country." Describes various activities such as school exhibitions, extension lectures, institutes and Chautauquas, civic debates, libraries, etc.

66. **Dadisman, S. H.** Manual training in the country school. Industrial-arts magazine, 1: 22–24, January 1914.
Shows how manual training in the Consolidated school of Rollo, Illinois, is meeting the needs of the rural community.

67. **Evans, C. E.** Training teachers for rural service. Texas school magazine, 16: 12–15, January 1914.

68. **Farwell, Parris Thaxter.** Village improvement. New York, Sturgis & Walton company, 1913. xi, 362 p. illus. 12°. (Farmer's practical library, ed. by E. Ingersoll.)
Bibliography: p. 350–56.
Includes chapters on Educational and co-operative work, The public school, Boys' and girls' clubs, and Play for young and old.

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69. **Hayes, D. W.** The normal school and the rural problem. American schoolmaster, 6: 433–48, December 1913.

Paper read before the joint meeting of the Departments of normal schools and of rural and agricultural education of the National education association, at Salt Lake City, July 8, 1913.

The article "presents a problem of special importance at the present time, suggests what can be done on the part of teachers' training schools towards its solution, and indicates what is now being done in this direction."

70. **Kirk, Will T.** Taking the high school into the country. Popular educator, 31: 247–50, January 1914.

Tells of the work of L. R. Alderman in Oregon.

71. **Beagan, Chapell R.** Linking the school with the home and community. Normal instructor, 23: 15–16, January 1914.

Shows what a poor rural community at Linville, Louisiana, has done for its schools.

72. **St. Clair, David F.** The rural life engineer and his work. American review of reviews, 49: 73–80, January 1914.

Describes work of the Y. M. C. A. county secretaries or rural-life engineers. Illustrated.

73. **Schuster, Sarah J.** Regeneration of the rural school. School century, 9: 204–6, January 1914.

Discusses the work of Mr. E. J. Tobin, Superintendent of schools, Cook county, Illinois.

Also in Catholic school journal, 13: 312–13, 319, January 1914.

74. **Threadgill, *Mrs.* John.** The traveling library commission and the rural schools. Oklahoma school herald, 21: 12–13, December 1913.

75. **Womack, J. P.** The opportunity of the country teacher. Journal of education, 79: 35–37, January 8, 1914.

This article is from an address given before the Arkansas state teachers' association at Little Rock.

SECONDARY EDUCATION.

76. **Allen, I. M.** Some experiments in high school instruction. School review, 22: 26–44, January 1914.

Experiments in teaching elementary science in the Wichita high school, Kans. Conclusion drawn that high school instruction must be "intensified rather than extensified, or problemized rather than topicized."

77. **Bole, John A.** The organization of a large high school. School review, 22: 1–11, January 1914.

Describes process of organization of the Eastern district high school, Brooklyn, N. Y. Draws the following conclusion: "Promotion by subject does not necessitate small classes, nor classes uneven in size. If classes are of uniform size, a relatively large number of pupils can be taught without overcrowding classes and without overworking teachers."

78. **Maphis, Charles G.** A decade of growth in secondary education in the Southern states. High school quarterly, 2: 80–87, January 1914.

A paper read before the Association of colleges and secondary schools of the Southern states at its annual meeting held at Knoxville, November 5–8, 1913.

79. **Stewart, Joseph S.** Report of the Southern commission on accredited schools, Knoxville, Tenn., Nov. 7th, 1913. High school quarterly, 2: 99–104, January 1914.

TEACHERS: TRAINING AND PROFESSIONAL STATUS.

80. **The Arkansas state normal school.** Arkansas teacher, 1: 7–11, December 1913.

81. **Jastrow, Hedwig.** Entschädigung der wegen verheiratung aus dem amte scheidenden lehrerinnen. Lehrerin, 30: 297–99, December 20, 1913.

Pension rights of women school teachers who leave the profession to get married. Gives tables.

82. **McAndrew, William.** The joy of teaching. Journal of education, 78: 625–26, December 18, 1913.

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83. **New York state teachers' association.** Report on a professional code of ethics for teachers, by the sub-committee of the Executive committee, George M. Forbes, chairman. American education, 17: 272–75, January 1914.
Also in School bulletin, 40: 73–74, December 1913.

84. Recommendations of the Ohio school survey on certification of teachers. Ohio teacher, 34: 197–98, December 1913.

85. **Schaeffer, Nathan C.** The dead line. Some teachers die before they are ready for burial. Pennsylvania school journal, 62: 284–87, January 1914.
Claims that in the vocation of teaching lapse of study means lapse of efficiency and ultimately innocuous desuetude, if not mental stagnation for both teachers and pupils.

86. **Victoria university of Manchester, Department of education.** The demonstration school record no. II. The pursuits of the Felden school. Ed. by J. J. Findlay. Manchester, University press, 1913. xxxiii, 283 p. front., plates. 8°. (Publications of the University of Manchester, no. LXXV. Educational series. no. VII)

87. **Young, Rose.** Guilty of motherhood. Good housekeeping magazine, 58: 27–35, January 1914.
Married women as teachers. Conditions in schools of New York city.

HIGHER EDUCATION.

88. **Berendsohn, Walter A.** Von den studentischen gemeinschaft im amerikanischen college. Akademische rundschau, 2: 162–7, December 1913.
An interesting and discriminating statement of certain phases of student life at American colleges.

89. **Boutroux, Émile.** Science et culture. Revue internationale de l'enseignement, 33: 385–401, December 1913.
An address delivered at the inauguration of the Graduate college of Princeton university, October 21, 1913.

90. **Dabney, Charles W.** A study of the student body of the University of Cincinnati: a municipal university. National municipal review, 3: 68–77, January 1914.

91. **Davidson, Norman J.** Things seen in Oxford. London, Seeley, Service & co. limited, 1914. 258 p. illus. 16°.

92. **Draper, Ernest G.** The college man in business. Outlook, 106: 27–30, January 3, 1914.
Conclusions drawn from a typical class in two typical institutions—Yale university (class of 1906), and Amherst college (class of 1906).

93. **Gribble, Francis.** The romance of the Cambridge colleges. London, Mills & Boon, limited, 1913. 268 p. illus. 12°.

94. **Hart, Joseph K.** The democratic organization of a state university. Popular science monthly, 84: 91–99, January 1914.
Advocates among other things a larger recognition of the student body. Says: "In all questions affecting the real policy of the university the student body must have a chance to express its deliberate will in a democratic sort of way." The problem of the democratic participation by the faculty in the actual affairs of the university must also be solved.

95. **Hibben, John G.** The type of graduate scholar. Educational review, 47: 1-9, January 1914.
Discusses the determining forces in the academic world to-day, which tend "to constitute a definite type of graduate student."

96. **Johnston, J. B.** University organization. Science, n. s. 38: 908–18, December 26, 1913.
Discusses what the writer considers to be the proper form of university organization, and how it can be approached in our state universities.

97. **Jones, Adam Leroy.** The work of the committee on undergraduate admissions. Columbia university quarterly, 16: 27–39, December 1913.
To be concluded.

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98. **Jones, E. E. Constance.** Girton college. London, A. & C. Black, 1913. 63 p. illus. 8° (Beautiful Britain series)

99. **Lowell, A. Lawrence.** Measurements of efficiency in college. Journal of education, 78: 851–52, December 25, 1913.
Address before the New England association of colleges and preparatory schools.

100. **Matthews, W. K.** Some features of higher education in Germany. Methodist review, 63: 74–90, January 1914.
Concludes that the school system and the methods of instruction in Germany are calculated to beget dependence on authority rather than independence and freedom of action.

101. **Perrott, George St. John.** Reminiscences of Oxford. Quarterly journal of the University of North Dakota, 4: 154–63, January 1914.
An account of experiences at Oxford "by one of her sons."

102. **Salisberg, Paul von.** Deutsche kulturarbeit im ausland. 1. Das Deutsch-Südamerikanische institut. Hochschul-nachrichten, 24: 39–40, November 1913.
Describes the "German South-American institute," a German educational organization with branches in most of the South American states. The Institute has close affiliations with the University of Bonn and the Technical school at Aachen.

103. **Stearns, Harold E.** The confessions of a Harvard man. Forum, 51: 69–81, January 1914.
Concluded from December number. Harvard life from the inside. Criticises what he terms "the lack of vigorous intellectual discipline." Thinks a general culture is still a man's best training for any special work. Deplores "the steady growth of modern utilitarian ideals at Harvard."

104. **Stevens, W. LeConte.** Academic student elections. Science, n. s. 39: 91–94, January 16, 1914.
Observations on F. C. Ferry's article, Some tables of student hours of instruction, in Science, n. s. 38: 584–89, October 24, 1913.

105. **Venn, John.** Early collegiate life. Cambridge, W. Heffer and sons ltd., 1913. 286 p. 12°.
Relates to Gonville and Caius college, Cambridge university.

SCHOOL ADMINISTRATION.

106. **Dutton, Samuel T.** The investigation of school systems. Educational review, 47: 57–64, January 1914.
Writer says: "Instead of appointing a commission to report publicly on city schools, it would seem far better to choose some one or two very competent persons as advisors to the school system, say for a period of five years, giving them proper salary and letting them make confidential reports to the board, from time to time, on such matters as seem to them to need special attention . . . It would prevent the exploitation of personal opinions and that playing to the galleries which is so likely to occur, etc."

107. **Great Britain. Board of education. Office of special inquiries and reports.** Memorandum on compulsory attendance at school in certain European countries and American states. London, Printed under the authority of H. M. Stationery office, by Eyre and Spottiswoode, ltd., 1913. 75 p. 8°. (Imperial education conference papers. II)

108. **Meade, George H.** A heckling school board and an educational stateswoman. Survey, 31: 443–44, January 10, 1914.
Discusses the re-election of Mrs. Ella Flagg Young as superintendent of schools of the city of Chicago.

109. **Weet, Herbert S.** Elimination, retardation, and non-promotion. American school board journal, 48: 9–11, 65, January 1914.
"This paper, which formed the basis of an extended discussion before the New York Council of superintendents, presents one of the first working schemes for reducing retardation, etc., which has been found practical."

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SCHOOL MANAGEMENT.

110. **Gill, Wilson L.** The boys' and girls' republic; text-book of the art of citizenship. Philadelphia, American patriotic league [1913] 100 p. illus. 12°.

111. ——— A new citizenship. Democracy systematized for moral and civic training. Philadelphia, American patriotic league [1913] 268 p. illus. 12°.
Introduction by Patterson Du Bois.
The book undertakes to show how pupil self government has been developed and successfully applied, and how the work which has already become both national and international may be further developed.

112. **Lugg, Charles H.** Home work and the school. South Dakota educator, 17: 8–10, December 1913.
The author believes in home tasks for pupils to a limited extent, but thinks they should be such that they will chime in with the interests and the harmonies of the home life.

113. The use of a score card in appraising class work. School review, 22: 57–60, January 1914.
Gives samples of cards.

SCHOOL ARCHITECTURE.

114. **Keene, Charles H.** The effect of conditions of schoolroom heating and ventilating on schoolroom attendance. School review, 22: 20–25, January 1914.
Conditions in Buffalo, N. Y., described. Makes a plea for thorough ventilation. Shows what has been accomplished by open-air schools.

115. **Winslow, C. E. A.** School ventilation in New York city. American journal of public health, 3: 1158–75, November 1913.
Results of a study of existing atmospheric conditions in the schools, made by Prof. Charles Baskerville and the writer, as a part of the New York school inquiry. Thirty-two typical examples of schools were selected for examination.

SCHOOL HYGIENE AND SANITATION.

116. **Burnham, William H.** Mental hygiene in the school. Mind and body, 20: 387–91, January 1914.
Read at the fourth International congress on school hygiene, August 1913, at Buffalo, N. Y.

117. **Foster, N. K.** The Oakland system of medical supervision. American education, 17: 208–11, December 1913.

118. **Greenwood, Arthur.** The health and physique of school children. Westminster, P. S. King & son, 1913. xv, 96 p. tables, charts. 8°.
An anthropometric study of British school children, published by the Ratan Tata foundation, School of economics, University of London.

119. **Kohnky, Emma.** Preliminary study of the effect of dental treatment upon the physical and mental efficiency of school children. Journal of educational psychology, 4: 571–78, December 1913.
"The method of equal groups was employed and check tests were made upon children of the same ability who had no dental treatment. The gain of the treated group constitutes a strong argument in favor of the extension of dental treatment in the schools."

120. **McKeag, Anna Jane.** The conservation of the child's energy. Child-welfare magazine, 8: 163–66, January 1914.
It is the purpose of this article to point out some of the facts that have been discovered in the last two decades in regard to methods of utilizing to the best advantage the powers and energy of the child in the schoolroom.

SEX HYGIENE.

121. **Foerster, F. W.** The sense of shame. Do sex crusaders forget its importance? Pennsylvania school journal, 62: 247–49, December 1913.
Reprinted from the Philadelphia Ledger.

122. **Hahn, Clarence W.** Sex education for school children. School science and mathematics, 14: 54–63, January 1913.
Outlines a course for sex education.

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PLAY AND PLAYGROUNDS.

123. **Playground and recreation association of America.** Year book. Playground, 7: 371–409, January 1914.
Gives statistics of the cities that "played" last year.

SOCIAL ASPECTS OF EDUCATION.

124. **Elliott, Edward C.** The schoolhouse as a crime contributor. Bulletin of the American academy of medicine, 14: 383–87, December 1913.
By "schoolhouse" the writer means "the entire complex of material surroundings and physical arrangements making up the immediate environment of the typical public school." Urges use of school buildings for civic and social purposes. Writer has reference to the increasing number of non-social offenses and not to criminal tendencies usually recognised as such by the law.

125. **Macadam, Elizabeth.** The universities and the training of the social worker. Hibbert journal, 12: 283–94, January 1914.
Describes conditions in England. Says that funds are needed for endowments to establish schools for social science on a sound basis.

126. New Year goals in social work . . . 1914. Survey, 31: 349–59, December 27, 1913.
Reviews the prospective programmes of social organizations for the year 1914. Discusses child labor, recreation, social settlements, vocational education, sex education, mental hygiene, etc

127. **Perry, Clarence Arthur.** The social centers of 1912–13. New York, Department of recreation, Russell Sage foundation [1913] 8 p. illus. 8°. (Publication no. Rec. 135)
Presents information regarding "practically all of the cities which had definite undertakings of a social center character" during the year.

128. **Shields, Thomas Edward.** An international movement for home education. Catholic educational review, 7: 48–56, January 1914.
The author speaks especially of the Fourth International congress for home education to be held in Philadelphia, September 1914.

CHILD WELFARE.

129. The uplift book of child culture; by Orison Swett Marden, Jenny B. Merrill, Ben B. Lindsey, Alice R. Northrop, Gustave A. Blumenthal, Eli W. Weaver. Philadelphia, Pa., Uplift publishing company [1913] xi, 425 p. illus. 8°.
Covers a wide range of juvenile interests—intellectual, physical, moral, vocational, etc.

130. **Waite, Edward F.** The physical basis of crime: from the standpoint of the judge of a juvenile court. Bulletin of the American academy of medicine, 14: 388–95, December 1913.
Recommends medical inspection of schools, etc.

MORAL AND RELIGIOUS EDUCATION.

131. **Cope, Henry F.** Co-operation on the campus. Religious education, 8: 441–46, December 1913.
Gives a possible ideal of co-ordination in religious work based on the four factors of the university, the local church, the church worker, and the Christian association.

132. **Elliott, Harrison S.** A suggested curriculum for voluntary Christian education groups in colleges and universities. Religious education, 8: 463–69, December 1913.
"Tentative report of a Committee of the Council of North American student movements, with the co-operation of various leaders acquainted with the student field."

133. **Frayser, Nannie L.** Relating the child to the community through the school. Pilgrim teacher, 30: 84–88, February 1914.
Sunday school work. Newer methods of instruction described.

134. **Johnson, Franklin W.** The problems of boyhood: a course of ethics for boys in the Sunday school. Biblical world, 43: 29–32, January 1914.

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135. **Kent, Charles Foster.** The Bible and the college curriculum. Religious education, 8: 453–58, December 1913.
Gives the proposed college curriculum courses.

136. [Symposium on the educational, religious, and social activities of the Young men's Christian association] Association men, 39: 169–210, January 1914.

MANUAL AND VOCATIONAL TRAINING.

137. **Abercrombie, John W.** Vocational education. Speech in the House of representatives, October 2, 1913. Washington, Government printing office, 1913. 16 p. 8°.
With reference to the proposed joint resolution providing for the appointment of a commission to consider the need and report a plan for national aid for vocational education.

138. **Adkins, Frank J.** A counterblast against vocationism. School world, 16: 9–12, January 1914.

139. **Black, Ryland M.** The cultural element in vocational training. American schoolmaster, 6: 449–56, December 1913.
Address before a recent meeting of the North Dakota teachers' association.

140. **Fuller, Robert J.** Cooperation between the National education association and the National society for the promotion of industrial education. School review, 22: 12–19, January 1914.

141. **Henderson, Wilson H.** A program for vocational education. Industrial-arts magazine, 1: 6–8, January 1914.
Claims that in the program for vocational education, there is no one unit, scheme or course which will, by itself, solve the problem. The vocational school, continuation school, and co-operative school and shop course each has its place, and it has been the purpose of this article to show their relative values as agents in the solution of the problem.

142. **Matterson, Emma B.** Shall we teach household arts in our schools? Education, 34: 312–15, January 1914.

143. **Offenhauer, R. E.** Vacation earnings of high school boys. Ohio educational monthly, 62: 625–26, December 1913.
Gives statistics showing the labor and earnings of the high school boys of Sandusky, Ohio, for the vacation period of 1913.

144. **Richards, Charles R.** How shall we study the industries for the purposes of vocational education? Vocational education, 3: 159–68, January 1914.
A valuable study in which the author "points out the ends to be sought in making a survey of the industries of a community and gives a form of classification for securing the desired result."

145. **Roberts, William M.** The development of part-time education for apprentices in Chicago. Vocational education, 3: 197–207, January 1914.
A paper read at the seventh annual convention of the National society for the promotion of industrial education, Grand Rapids, Michigan, October 1913.
The Chicago experiments would seem to be especially suggestive to other cities, owing to the working agreements, which have been brought about between the labor unions and employers in the effort to solve the problem of apprentice training.

146. **Short, R. L.** The West technical high school of Cleveland, Ohio. School journal, 81: 42–43, December 1913.

147. **Wight, John G.** Vocational training in village schools. School journal, 81: 47–49, December 1913.
"Vocational training in city and rural schools has been duly considered. But there are considerable village populations that are neither urban nor rural. Some of the peculiar problems of vocational training in such communities are here discussed by the late Doctor Wight."—Editors.

PROFESSIONAL EDUCATION.

148. **Babcock, Kendric Charles.** Preliminary training for entrance into medical schools. Quarterly of the Federation of state medical boards of the United States, 1: 130–34, January 1914.

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149. **McLeod, J. J. R.** The teaching of physiology to medical students. Science, n. s. 39: 51–59, January 9, 1914.

Employs the term "physiology" in the broad sense—to include the physical, the purely biological and the chemical phenomena of life.

150. **Moore, Veranus A.** The New York state veterinary college at Cornell university. Science, n. s. 39: 14–17, January 2, 1914.

151. **Osler, William.** Examinations, examiners, and examinees. Quarterly of the Federation of state medical boards of the United States, 1: 101–14, January 1914.

An address delivered at the opening of the winter session of St. George's Hospital Medical School on October 1, 1913.

152. **Register, Layton B.** A Paris law school examination. University of Pennsylvania law review, 62: 187–90, January 1914.

Methods of examination at the law school of the University of Paris for degree of *licence en droit*—bachelor of laws.

EDUCATION OF WOMEN.

153. **Beyer, Thomas P.** Creative evolution and the woman question. Educational review, 47: 22–27, January 1914.

Writer contends that "feminism and its entering-wedge, woman suffrage, do not promise heaven, but mutilation for the race."

154. **Courtney, Janet E.** Women as brain-workers. Nineteenth century, 74: 1284–93, December 1913.

Discusses the education of women and their work in the world.

155. **Grant, Cecil** *and* **Hodgson, Norman.** The case for co-education. London, Grant Richards ltd., 1913. 325 p. 12°.

The favorable conclusions of the authors are based upon the results of the English experiment in coeducation at Keswick, and subsequently at St. George's, Harpenden, extending over 15 years. Two chapters on the Experience of America, p. 159–200, are included.

156. **Hollingworth, Leta Stetter.** Variability as related to sex differences in achievement; a critique. American journal of sociology, 19: 510–30, January 1914.

157. **Hylla, E.** Der unterschied der geschlechter und seine bedeutung für die jugenderziehung. Deutsche schule, 17: 782–90, December 1913.

A summary of the discussions on coeducation at the 1913 meeting of the League for school reform.

158. **Mismo, Jane.** L'éducation physique des femmes en France. Revue, 24: 501–7, December 1913.

159. **Munford, Mary C. B.** The co-ordinate college. The state's need of it. Its relation to the university and our system of public education. Virginia journal of education, 7: 152–53, January 1914.

Tells of the demand in Virginia for a co-ordinate college for women affiliated with the State university at Charlottesville.

160. **Thwing, Charles Franklin.** Notes on the history of the College for women of Western reserve university for its first twenty-five years, 1888–1913. Cleveland, O. The Western reserve university press, 1913. 60 p. incl. front. 2 pl. 8°.

Cover-title: The co-ordinate system in the higher education.

EXCEPTIONAL CHILDREN.

161. **Barnett, Mary G.** Young delinquents: a study of reformatory and industrial schools; with an introduction by Sir John Gorst. London, Methuen & co. ltd. [1913] xiv, 222 p. 12°.

The result of frequent attendances at children's courts, and of visits to some 20 or 30 schools in England. Contains a résumé of the report of the Departmental committee of 1911, p. 179–201.

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162. **Hartwell, E. C.** A small city's experiment with unusual children. American school board journal, 48: 15, January 1914.
Describes an experiment made during the past three years in the schools of Petoskey, Michigan.

163. **McMurtrie, Douglas C.** Bibliography of the education and care of crippled children. A manual and guide to the literature relating to cripples, together with an analytical index. 1st ed. New York, D. C. McMurtrie, 1913. xii, 99 p. 8°.

164. **Rogers, A. C.** The desirability of early diagnosis of mental defect in children, and mental tests as an aid. Journal of the American medical association, 61: 2294–97, December 27, 1913.
Gives tests for defective children; the Binet-Simon method. Distinguishes mental deficiency in children, and like curable conditions, from insanity. Classification of defectives.

LIBRARIES AND READING.

165. **Bostwick, Arthur E.** The making of an American's library. IV. The boy and the book. Bookman, 38: 531–37, January 1914.

166. **Hassler, Harriot E.** School reading lists, correlated with the course of study in the public schools of the city of New York. Grades 3–8. Queens borough public library bulletin, 2: 4–16, November 1913.

167. **Johnston, William Dawson.** The library as a university factor. Library journal, 39: 10–15, January 1914.
Address delivered November 7, 1913, at the meeting of the Association of American universities, held at the University of Illinois, Urbana, Ill.

168. **National council of teachers of English.** Report of the Committee upon home reading. November, 1913. Chicago, Ill., National council of teachers of English, 1913. 16 p. 8°.
Contains a classified list of books for home reading of high-school pupils.

BUREAU OF EDUCATION: RECENT PUBLICATIONS.

169. Consular reports on industrial education in Germany. Washington, 1913. 75 p. (Bulletin, 1913, no. 54)
CONTENTS.—I. The system of industrial schooling.—II. Schools for builders.—III. Preparatory courses for master craftsmen.—IV. "Meisterkurse" at Frankfort on the Main.—V. The Trade institute at Cologne.—VI. Schools for fruit-growing.

170. Education of the immigrant. Abstracts of papers read at a public conference under the auspices of the New York-New Jersey committee of the North American civic league for immigrants, held at New York city, May 16 and 17, 1913. Washington, 1913. 52 p. (Bulletin, 1913, no. 51)

171. The Farragut school, a Tennessee country-life high school; by A. C. Monahan and Adams Phillips. Washington, 1913. 23 p. plates. (Bulletin, 1913, no. 49)

172. The Fitchburg plan of cooperative industrial education, by Matthew R. McCann. Washington, 1913. 28 p. plates. (Bulletin, 1913, no. 50)

173. Sanitary schoolhouses. Legal requirements in Indiana and Ohio. Washington, 1913. 40 p. (Bulletin, 1913, no. 52)

NEW PERIODICALS.

Arkansas teacher. Vol. 1, no. 1, January 1913. 10 numbers a year. Conway, Ark.

Hawaii educational review. Vol. 1, no. 1, January 1913. 10 numbers a year. Honolulu, Hawaii.

High school quarterly. Vol. 1, no. 1, October 1912. Published quarterly. University of Georgia, Athens, Ga.

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Illinois teacher. Vol. 1, no. 1, April 1913. Published monthly. Illinois state teachers' association, Woodstock, Ill.

Industrial-arts magazine. Vol. 1, no. 1, January 1914. Published monthly. Bruce publishing company, Milwaukee, Wis.

Louisiana school work. Vol. 1, no. 1, April 1913. Published monthly, except July and August. Baton Rouge, La.

Mid-west quarterly. Vol. 1, no. 1, October 1913. Published quarterly. University of Nebraska, Lincoln, Nebr.

Rural educator. Vol. 1, no. 1, January 1913. Published monthly. Ohio state university, Columbus, Ohio.

Storytellers' magazine. Vol. 1, no. 1, June 1913. Published monthly. New York, N. Y.

Vocationist. Vol. 1, no. 1, October 1912. Published quarterly. Oswego, N. Y.

PERIODICALS INDEXED IN THIS NUMBER.

Akademische rundschau, Leipzig, Germany.
American education, 50 State street, Albany, N. Y.
American journal of sociology, University of Chicago press, Chicago, Ill.
American journal of public health, 289 Fourth avenue, New York, N. Y.
American review of reviews, 30 Irving place, New York, N. Y.
American school board journal, 129 Michigan street, Milwaukee, Wis.
American schoolmaster, State normal school, Ypsilanti, Mich.
Archiv für pädagogik, Leipzig, Germany.
Arkansas teacher, Conway, Ark.
Association men, 124 East Twenty-eighth street, New York, N. Y.
Atlantic monthly, 4 Park street, Boston, Mass.
Biblical world, University of Chicago press, Chicago, Ill.
Bookman, Fourth avenue and Thirtieth street, New York, N. Y.
Bulletin of the American academy of medicine, Easton, Pa.
Bulletin of the Society for the promotion of engineering education, Lancaster, Pa.
Catholic educational review, Washington, D. C.
Catholic school journal, Milwaukee, Wis.
Child-welfare magazine, 227 South Sixth street, Philadelphia, Pa.
Columbia university quarterly, Columbia university press, New York, N. Y.
Delineator, Butterick publishing company, New York, N. Y.
Deutsche schule, Leipzig, Germany.
Education, 120 Boylston street, Boston, Mass.
Educational bi-monthly, Board of education, Chicago, Ill.
Educational review, Columbia university, New York, N. Y.
Elementary school teacher, University of Chicago press, Chicago, Ill.
English journal, University of Chicago press, Chicago, Ill.
Forum, 2 East Twenty-ninth street, New York, N. Y.
Good housekeeping magazine, 381 Fourth avenue, New York, N. Y.
Humanist journal, London, England, and 6 Beacon street, Boston, Mass.
High school quarterly, University of Georgia, Athens, Ga.
History teacher's magazine, McKinley publishing company, Philadelphia, Pa.
Hochschul-nachrichten, Munich, Germany.
Industrial-arts magazine, Bruce publishing company, Milwaukee, Wis.
Journal of education, 6 Beacon street, Boston, Mass.
Journal of educational psychology, Warwick & York, inc., Baltimore, Md.

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Journal of geography, Madison, Wis.
Journal of the American medical association, 535 Dearborn street, Chicago, Ill.
Kindergarten review, Springfield, Mass.
Lehrerin, Leipzig, Germany.
Library journal, 141 East Twenty-fifth street, New York, N. Y.
Methodist review, Smith & Lamar, Nashville, Tenn.
Mid-west quarterly, University of Nebraska, Lincoln, Nebr.
Mind and body, Herold building, Milwaukee, Wis.
National municipal review, North American building, Philadelphia, Pa.
New England magazine, 221 Columbus avenue, Boston, Mass.
Nineteenth century, London, England.
Normal instructor, Dansville, N. Y.
Ohio educational monthly, Columbus, Ohio.
Ohio teacher, Box 326, Athens, Ohio.
Oklahoma school herald, Oklahoma City, Okla.
Outlook, 287 Fourth avenue, New York, N. Y.
Pädagogische warte, Leipzig, Germany.
Pädagogische zeitung, Berlin, Germany.
Parents' review, London, England.
Pedagogical seminary, Worcester, Mass.
Pennsylvania school journal, Lancaster, Pa.
Pilgrim teacher, 14 Beacon street, Boston, Mass.
Playground, 1 Madison avenue, New York, N. Y.
Popular educator, 50 Bromfield street, Boston, Mass.
Popular science monthly, Substation 84, New York, N. Y.
Primary education, 50 Bromfield street, Boston, Mass.
Quarterly journal of the University of North Dakota, University, N. Dak.
Quarterly of the Federation of state medical boards of the United States, Easton, Pa.
Queens borough public library bulletin, Jamaica, N. Y.
Religious education, 332 South Michigan avenue, Chicago, Ill.
Revue, Paris, France.
Revue internationale de l'enseignement, Paris, France.
Revue pédagogique, Paris, France.
Rivista d'Italia, Rome, Italy.
School, Bloor and Spadina, Toronto, Canada.
School and home education, Bloomington, Ill
School-arts magazine, 120 Boylston street, Boston, Mass.
School bulletin, Syracuse, N. Y.
School century, Oak Park, Ill.
School journal, 31–33 East Twenty-seventh street, New York, N. Y.
School news and practical educator, Taylorville and Chicago, Ill.
School review, University of Chicago press, Chicago, Ill.
School science and mathematics, Mount Morris, Ill.
School world, London, England.
Science, Substation 84, New York, N. Y.
South Dakota educator, Mitchell, S. Dak.
Survey, 105 East Twenty-second street, New York, N. Y.
Texas school magazine, 1304 Commerce street, Dallas, Tex.
Training school bulletin, Vineland, N. J.
University of Pennsylvania law review, Philadelphia, Pa.
Virginia journal of education, Richmond, Va.
Vocational education, Manual arts press, Peoria, Ill.

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BULLETIN OF THE BUREAU OF EDUCATION.

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†No. 1. On the training of persons to teach agriculture in the public schools. Liberty H. Bailey.
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No. 1. Monthly record of current educational publications, January, 1914.
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THE SCHOOL AND THE START I

A STUDY OF THE RELATION BETWEEN SCHOOL AND EMPLOYMENT IN ENGLAND, SCOTLAND, AND GERMANY

By MEYER BLOOMFIELD
DIRECTOR OF THE VOCATION BUREAU
BOSTON, MASS.

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THE SCHOOL AND THE START IN LIFE

A STUDY OF THE RELATION BETWEEN SCHOOL AND EMPLOYMENT IN ENGLAND, SCOTLAND, AND GERMANY

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, December 2, 1913.

SIR: Not only does society attempt to prepare its youth for life, for making a living and for effective service; it also attempts to direct them, at the end of their school period, toward those vocations to which they seem to be best fitted and to assist them in finding profitable employment. In more than one American city this is considered a legitimate function of the system of education. Because of increasing interest in this subject, I have asked Mr. Meyer Bloomfield, director of the Vocation Bureau of Boston, to prepare for this bureau the manuscript submitted herewith, embodying the results of the study of the relations of the school and employment in England, Scotland, and Germany.

I recommend that it be published, under the title "The School and the Start in Life," as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

To the SECRETARY OF THE INTERIOR.

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ACKNOWLEDGMENT.

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Dr. Kerschensteiner, of Munich, and Dr. Albert Sudekum, of Berlin, both members of the German Parliament, and well known in their fields of education and civic service, made the visit to Germany profitable.

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THE SCHOOL AND THE START IN LIFE.

A STUDY OF THE RELATION BETWEEN SCHOOL AND EMPLOYMENT IN ENGLAND, SCOTLAND, AND GERMANY.

I. INTRODUCTION.

Within recent years an unusually active interest has been manifested in the after-school careers of the boys and girls who, either through graduation or through dropping out, leave the elementary schools of the United States.

The child-welfare organizations of the country have for many years labored to raise the compulsory school age and to safeguard the moral and physical well-being of young wage earners; social and educational agencies have, through private or through public funds, provided for a limited number of children, whose circumstances or whose natural inclinations pointed to some form of industrial employment, opportunities to enter, by means of preliminary vocational training and help, the higher levels of the occupations.

More recently the vocational guidance movement, with its vocation bureaus, vocational information, placement, scholarship, and follow-up societies, has focused public attention on the hitherto scantily recognized responsibility of the public school for the careers of the children who have left it for employment.

This concern of the schools for the occupational welfare of their boys and girls, new in the sense of the new types of effort which have been organized to help young people find themselves in life, has brought into the foreground certain questions of momentous importance in school policy and administration.

What is the duty of the public school toward the boys and girls who drop out from the elementary grades as soon as they can get a work certificate? What special interest has the school in the kind of work these children find to do? In other words, should there be any further definite relation between the school and the child when the decision to leave is about to be made, or when the child has already left for work? And if so, to what extent shall the school help to provide and supervise employment for such children, or to furnish information, counsel, incentives, and opportunities in order that the start in life for that army of boys and girls now wastefully

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adrift during the transition from school to work may be made more promising?

These are some of the questions before thinking people not only in this country but in other advanced countries also. They touch not alone the professional interests of the educator and the efficiency requirements of modern industry; they affect the very foundations of our social well-being; they squarely direct attention to a slighted national problem—the conservation of adolescent youth.

Interest in this vital matter has of late been quickening. Significant vocational experiments are under way throughout the country by school boards, teachers' associations, and also by a number of private societies started for the purpose of cooperating with the public schools and their children.

The object of the present study is to describe some of the important enterprises carried on by public and private agencies in England, Scotland, and Germany for the purpose of assisting boys and girls in their start in life. These countries have been selected for special inquiry because their work of vocational assistance, some of it decades old and much of it still in the early stages of experimentation, possesses peculiar interest and suggestiveness for workers in similar fields in the United States. Conditions and even viewpoints will be found so much at variance from our own, oftentimes, that direct adoption of the schemes described will be obviously out of the question. Imitation of the foreign experiment has not been any part of the plan of this inquiry. Genuine social service, as every experienced worker knows, is never a transplantation; it must grow out of local insight and necessity. This, too, should be pointed out: The countries studied differ not only with respect to one another in methods and policies of helping the children vocationally but they differ, too, in many details within the various subdivisions of each country. Scotland does not follow England nor does England follow Germany in the work of vocational assistance. The work in Birmingham is unlike that in London, while Liverpool differs from both. North Germany and south Germany are widely apart in both method and accomplishment.

The reader, in a survey of foreign experiments, can not fail to be impressed by the elaborateness of machinery developed; the extent and effectiveness of the national and local support through legislation and money grants; and also by the extraordinary development of volunteer service on the part of men and women who are drawn from school, manufacturing, commercial, labor, civic, and social-service groups.

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II. ENGLAND AND SCOTLAND.

Although various Scotch and English towns have for years been carrying on some kind of juvenile advisory and placement work, frequently through members of the care committees established primarily to supervise school feeding, two parliamentary enactments, one known as the Labor Exchanges Act, passed in 1909, and the other as the Education (Choice of Employment) Act, passed in 1910, may be said to be the mainsprings of the present vocational guidance activities in the United Kingdom. These two acts, with respect to their advising and juvenile employment provisions, have been in process of application simultaneously. Under their authority many important experiments are under way. The separate education act of Scotland became effective in 1908, with the following provisions:

It shall be lawful for a school board, if they think fit, in addition to any powers already vested in them, to incur expenditure and to defray the same out of the school fund, in carrying out or in combining with one or more school boards to carry out the following objects (that is to say): In maintaining or combining with other bodies to maintain any agency for collecting and distributing information as to employments open to children upon leaving school.

THE EDUCATION (CHOICE OF EMPLOYMENT) ACT, 1910.

CHAPTER 37.

AN ACT To enable certain local education authorities to give boys and girls information, advice, and assistance with respect to the choice of employment. [28th November, 1910.]

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled and by the authority of the same, as follows:

1.—(1) The powers conferred upon the councils of counties and county boroughs as local education authorities under section two of the Education Act, 1902 (in this act called the principal act), shall include a power to make arrangements, subject to the approval of the board of education, for giving to boys and girls under seventeen years of age assistance with respect to the choice of suitable employment, by means of the collection and the communication of information and the furnishing of advice.

(2) The council of a county, and the council of a noncounty borough or urban district within the county who are a local education authority under Part III of the principal act, may, as part of their powers under Part II of that act, enter into and carry into effect arrangements or agreements for the cooperation of the council of the borough or district with the county council in respect of the exercise by the county council of their powers under this act, either—

(a) by rendering to the county council such assistance as may be arranged or agreed; or

(b) by exercising within the borough or district, on behalf of the county council, all or any of the powers of that council under this act;

and any such arrangement or agreement may, amongst other things, provide for the proportion in which the expenses incurred under it are to be borne by the councils respectively.

(3) The expenses incurred under this act by any council (whether the council of a county, county borough, borough, or urban district) shall be defrayed as part of the expenses of that council under section two or section three of the principal act, as the case may be.

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2. This act may be cited as the Education (Choice of Employment) Act, 1910, and this act and the Education Acts, 1870 to 1909, may be cited together as the Education Acts, 1870 to 1910.

Under the Labor Exchanges Act of 1909, the Board of Trade, which combines many of the functions of and corresponds to our Departments of the Interior, Commerce, and Labor, was authorized to make its own regulations for the conduct of these exchanges and to establish such juvenile advisory committees as it thought fit.

Accordingly, the Board of Trade issued the following general regulations and special rules dealing with juvenile employment in England and Wales, and in Ireland:

GENERAL REGULATIONS MADE BY THE BOARD OF TRADE IN PURSUANCE OF SECTION (2) OF THE LABOR EXCHANGES ACT, 1909.

General regulations for labor exchanges managed by the Board of Trade.

I.—(1) Applicants for employment through a labor exchange shall register and shall renew their registration there in person, if they reside within three miles of the exchange or within such other distance as the Board of Trade may direct from time to time, either generally or as regards any specified district or class of applicants.

(2) In the case of applicants not residing within the above limit of distance, the officer in charge of the labor exchange may accept registration or renewal of registration through the post.

(3) Applicants shall register upon a form containing the particulars set forth in the first schedule hereto, subject to such modifications as may be made by the Board of Trade from time to time, either generally or as regards any specified district or trade or class of applicants.

(4) The above regulations shall not apply to juvenile applicants.

II.—Registration of applications for employment shall hold good for seven days from the date of registration or for such other period as the Board of Trade may from time to time direct either generally or as regards any specified district or trade or class of applicants, but may be renewed within that period for a like period and so on from time to time.

III.—(1) Any association of employers or workmen may file at a labor exchange a statement with regard to the existence of a strike or lockout affecting their trade in the district. Any such statement shall be in the form set out in the second schedule hereto, and shall be signed by a person authorized by the association for the purpose. Such statement shall be confidential, except as hereunder provided, and shall only be in force for seven days from the date of filing, but may be renewed within that period for a like period, and so on, from time to time.

(2) If any employer who appears to be affected by a statement so filed notifies to a labor exchange a vacancy or vacancies for workmen of the class affected, the officer in charge shall inform him of the statement that has been filed, and give him an opportunity of making a written statement thereon. The officer in charge in notifying any such vacancies to any applicant for employment shall also inform him of the statements that have been received.

IV.—(1) The officer in charge of a labor exchange in notifying applications for employment and vacancies to employers and applicants, respectively, shall undertake no responsibility with regard to wages or other conditions, beyond supplying the employer or applicant, as the case may be, with any information in his possession as to the rate of wages desired or offered.

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(2) Copies or summaries of any agreements mutually arranged between associations of employers and workmen for the regulation of wages or other conditions of labor in any trade may, with the consent of the various parties to such agreements, be filed at a labor exchange, and any published rules made by public authorities with regard to like matters may also be filed. Documents so filed shall be open to inspection on application.

(3) No person shall suffer any disqualification or be otherwise prejudiced on account of refusing to accept employment found for him through a labor exchange where the ground of refusal is that a trade dispute which affects his trade exists or that the wages offered are lower than those current in the trade in the district where the employment is found.

V.—(1) Where an applicant for employment has been engaged through a labor exchange at which he is registered to take up employment at any place removed from the exchange or from his ordinary residence by more than 5 miles by the quickest route, or by such other distance as the Board of Trade may direct from time to time, either generally or as regards any specified district the officer in charge may, at his discretion, make an advance to the applicant toward meeting the expenses of travelling to the place of employment.

(2) The advance may be made at the request either of the employer or of the applicant. The person at whose request the advance is made shall give such undertaking with respect to the repayment of the advance as the Board of Trade, with the consent of the Treasury, may from time to time prescribe either generally or as regards any specified district or class of applicants.

(3) No advance shall be made where the officer in charge has reason to believe that the employment falls within the terms of Regulation IV (3) hereof.

(4) In making advances care shall be taken to avoid unduly encouraging rural laborers to migrate from the country to the towns or between Great Britain and Ireland.

(5) The advance shall not exceed the amount required to defray the applicant's fare to the place of employment, and will be made by the provision of a ticket or pass, or, in exceptional circumstances, in cash.

VI.—The officer in charge of a labor exchange shall consult the central office in London before notifying to applicants for employment vacancies at any place outside the British Isles.

VII.—(1) There shall be established by the Board of Trade in such areas of the United Kingdom as they think fit advisory trade committees consisting of equal numbers of persons representing employers and workmen in the district and appointed by the Board of Trade after consultation with such bodies and persons as they may think best qualified to advise them on the matter, together with a chairman, agreed upon by a majority both of the persons representing employers and of the persons representing workmen, or in default of such agreement appointed by the Board of Trade.

(2) It shall be the duty of advisory trade committees to advise and assist the Board of Trade in regard to any matters referred to them in connection with the management of labor exchanges.

(3) The members of an advisory trade committee, including the chairman, shall remain in office for three years.

(4) Vacancies, howsoever caused, occurring in the membership or chairmanship of an advisory trade committee, shall from time to time be filled in the same manner as provided by subclause (1) of this regulation in regard to the original appointment of members and chairman. Any person appointed to fill a vacancy shall not hold office after the expiration of the period during which the person in whose place he is appointed would have held office.

(5) At the request of the majority either of the persons representing employers or of the persons representing workmen on an advisory trade committee present at

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any meeting, voting on any particular question, shall be so conducted that there shall be an equality of votes as between the persons representing employers and the persons representing workmen, notwithstanding the absence of any member. Save as aforesaid every question shall be decided by a majority of the members present and voting on that question.

(6) On any question on which equality of voting power has been claimed under subclause 5 of this regulation the chairman shall have no vote, but in case of the votes recorded being equal he shall make a report to that effect to the Board of Trade and may also, if he think fit, state his own opinion on the merits of the question.

(7) Subject to these regulations the procedure of any advisory trade committee shall be determined from time to time by the Board of Trade, or by the committee with the approval of the board.

VIII.—(1) All applications for accommodation within the premises of a labor exchange shall be made to the officer in charge of such labor exchange, who shall consult the advisory trade committee for the district. Any such application shall only be granted for such purposes and on such terms and conditions as the committee may approve.

(2) In the case of labor exchanges which were in operation before the passing of the Labor Exchanges Act, 1909, existing arrangements with regard to accommodation may be allowed to continue, except in so far as they may be modified or canceled hereafter.

IX.—Subject to these regulations, special rules may be made from time to time by the Board of Trade, after consulting the board of education so far as regards England and Wales and the Scottish education department so far as regards Scotland and the lord lieutenant of Ireland so far as regards Ireland, with respect to the registration of juvenile applicants for employment; that is to say, applicants under the age of 17 or such other limit as the board may fix, either generally or as regards any specified district or trade or class of applicants.

Special Rules with Regard to Registration of Juvenile Applicants in England and Wales.

Made in Pursuance of Regulation No. IX of the General Regulations for Labor Exchanges Managed by the Board of Trade.

1. Juvenile applicants for employment shall register on the forms prescribed in the schedule to these rules, subject to such modifications as may be made therein by the Board of Trade from time to time. Such applicants, or any prescribed class of such applicants, may be permitted in lieu of attending personally at a labor exchange to register their applications at such other places as may be recognized by the Board of Trade as suitable for the purpose. Forms containing such applications, if transmitted forthwith to a labor exchange, shall be treated as equivalent to personal registration.

2.—(1) Special advisory committees for juvenile employment shall be established in such areas as the Board of Trade may think expedient. These committees shall include persons possessing experience or knowledge of education or of other conditions affecting young persons, appointed after consulting such authorities, bodies, and persons as the board think best qualified to advise them, and also persons representing employers and workmen, appointed after consulting any advisory trade committee established in the district in pursuance of Regulation No. VII of the General Regulations, together with a chairman appointed by the board.

(2) Such labor exchange officers as may be designated by the Board of Trade, and such of His Majesty's inspectors of schools as may be designated by the board of education may be present at meetings of the special advisory committees, but shall not be members thereof.

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3. Subject to these rules, the procedure of a special advisory committee for juvenile employment shall be determined from time to time by the Board of Trade or by the committee with the approval of the board.

4. It shall be the duty of a special advisory committee to give advice with regard to the management of any labor exchange in its district in relation to juvenile applicants for employment.

5. Subject to these rules a special advisory committee may take steps, either by themselves or in cooperation with any other bodies or persons, to give information, advice, and assistance to boys and girls and their parents with respect to the choice of employment and other matters bearing thereon. Provided that the Board of Trade and the officer in charge of a labor exchange shall undertake no responsibility with regard to any advice or assistance so given.

6.—(1) If any local education authority for higher education which has or may acquire statutory powers for the purpose of giving advice, information, or assistance to boys and girls with respect to the choice of employment or other matters bearing thereon, submits to the board of education a scheme for the exercise of those powers, and the board of education, after consulting with the Board of Trade, approve that scheme with or without modifications, the foregoing rules shall, so long as the scheme is carried out to the satisfaction of the board of education, apply to the area of that local education authority with the following modifications:

(a) The officer in charge of any labor exchange shall not undertake the registration of juvenile applicants for employment except in accordance with the provisions of the scheme.

(b) The special advisory committee for juvenile employment shall take no steps under rule 5 except in accordance with the provisions of the scheme.

(c) The Board of Trade may, if they think fit, recognize, in lieu of any special advisory committee established or to be established under these rules, an advisory committee constituted under the scheme, provided that such committee includes an adequate number of members possessing experience or knowledge of educational and industrial conditions, and thereupon the Board of Trade may, if the circumstances require, either dissolve any special advisory committee or modify its area and constitution.

(2) Nothing in this rule shall affect the registration at any labor exchange of vacancies for juvenile workers notified by employers.

7. These rules shall apply to the registration of juvenile applicants in England and Wales.

These rules are made by the Board of Trade after consultation with the board of education in pursuance of Regulation No. IX of the General Regulations for Labor Exchanges managed by the Board of Trade.

SCHEDULE TO SPECIAL RULES.

Particulars to be included on the form for registration of juvenile applicants for employment.

Surname..... Other names.....
Date of birth.....
Full address.....
Name of last day school and date of leaving.....
Standard or class in which applicant was on leaving.....
Whether applicant was a half-timer before leaving, and if so, how long.....
Whether attending or proposing to attend any continuation or technical school, and if so, in what course or subjects, and whether in the day or evening.....

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Employment or employments since leaving school:
(1).....
(2).....
(3).....
Employment desired.....
Whether willing to be apprenticed, and if so whether a premium can be paid.....
Whether willing to take work at a distance.....
Remarks.....

The creation by law of the vast placement and advisory machinery under the Board of Trade immediately presented a difficult problem as to the relation of the labor exchange officials and committees to the education authorities, some of which were carrying on juvenile advisory and employment schemes of their own. The problem is not altogether settled yet, although the tact and cooperative spirit on the part of both education and Board of Trade authorities have done much to promote community of service.

The first circulars issued by the two authorities are of interest as showing the nature of the cooperation established at the outset. These pronouncements have largely controlled the local manifestation of vocational assistance under the two acts, although it will be seen later that local initiative has been active even to the point of departure from the injunctions of the main office.

The board of education circular is given first:

CIRCULAR TO LOCAL EDUCATION AUTHORITIES.

BOARD OF EDUCATION,
Whitehall, London, S. W., August 17, 1911.

Exercise of Powers under the Education (Choice of Employment) Act, 1910.

SIR:

1. I am directed to refer to the Education (Choice of Employment) Act, 1910, and to the joint memorandum issued by the board of education and the Board of Trade on the 3d January, 1911, with regard to the cooperation between labor exchanges and local education authorities exercising their powers under this act. The board of education desire once more to call the attention of local education authorities to the very great importance of the field of activity open to them under this act. The board have already received a number of more or less detailed proposals from authorities for the exercise of their powers under the act, and they are further well aware that in areas where no definite scheme is as yet in operation much valuable work has been and is being done by voluntary agencies and by individuals in giving advice, information, and assistance to boys and girls during the critical period covering the end of their school career and the beginning and earlier years of their employment. Such activities, however, though widespread, are as yet by no means universal; and in the opinion of the board it is of the first importance that in urban areas, and, where possible, in county areas, local education authorities should take the opportunity afforded by the act of initiating such work where it is not at present carried on, of coordinating and organizing the existing voluntary agencies in a single coherent scheme, and of linking the whole with the work of the juvenile departments of labor exchanges in such a way that the moral and educational influences, which naturally center round elementary schools

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and continuation schools, should play their proper part in the transition from school life to the life of adult employment.

2. As is indicated in the joint memorandum of the two boards, it will generally be found desirable, where an authority exercise powers under this act, that the detailed work under the scheme should be intrusted to a special subcommittee of the authority and that this committee should have at their disposal the services of an executive officer. In view of the great importance of the duties of such an officer, and of the necessity for securing thoroughly adequate qualifications, the board are prepared to make annual grants in aid of approved salaries paid to executive officers in respect of duties carried out in accordance with a scheme under section 1 of the choice-of-employment act. The amount of the board's grant will not exceed one-half of the fixed amounts so paid in salaries (or the mean amounts, if the salaries are subject to increments in accordance with a scale approved by the board). and the maximum salaries in respect of which grant will be paid will be determined in accordance with the estimated number of children annually leaving elementary schools within the area or part of an area within which the act is in operation. For this purpose any part of a county forming a separate area for elementary education may, at the discretion of the board, be treated separately. The number of children between 12 and 13 years of age on the admission registers of public elementary schools as returned to the board for 1909 will be taken as the estimated number annually leaving the schools.

The salaries allowed will be as follows:

Number of children between 12 and 13:	Maximum salary in respect of which grant will be paid.
Under 500	£50
500 but less than 1,000	100
1,000 but less than 2,000	200
2,000 but less than 5,000	300
5,000 and over	400

3. It is contemplated that in areas of average size there will be a special officer assigned wholly to this work, and that in the larger areas the chief officer will need the services of an assistant, who should as a rule be a woman. On the other hand, in smaller areas the duties might be discharged by an officer also engaged in other work, while even in large towns it might be found convenient to distribute the duties between two officers engaged for the rest of their time; for example, in work in connection with continuation schools, instead of concentrating the duties in the hands of one officer. In all such cases of part-time employment, the board would require a proportionate part of the total salaries paid to officers so employed to be allocated definitely to work under the choice of employment act. The grant would then be payable, subject to the limitations of the total amounts set out above, in respect of the whole salary of full-time officers or in respect of the proportion of the salary of part-time officers allocated to the purposes of the act, as the case might be.

4. The board fully recognize that in areas of differing size and character the arrangements made for the exercise of powers under the act may vary considerably in points of detail. With a view, however, to assisting authorities who may be considering the matter, they have prepared a draft-outline scheme such as might be used in a county borough of average size; a copy of this scheme is appended to this circular. It is not intended to be in any way exhaustive, and substantial modifications of its provisions will probably be necessary or desirable, especially in the largest and smallest areas, and in counties. It is hoped, however, that it may afford some guidance, where this is desired, to authorities in making their arrangements. The board of education are further prepared to send one of their officers to confer personally with any authority desiring such assistance in the discussion or preparation of a scheme under the act.

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5. Should a scheme for a county or any part of a county involve the making of arrangements or agreements under section 1 (2) of the act between the council of the county and the council of any borough or urban district being a local education authority for the purposes of elementary education, a draft of the terms of the proposed arrangement or agreement should be submitted to the board with the scheme.

Draft Outline Scheme for the Exercise of Powers under the Education (Choice of Employment) Act, 1910.

1. The authority will exercise their powers under the Education (Choice of Employment) Act, 1910, for giving to boys and girls under 17 years of age assistance with respect to the choice of suitable employment, in accordance with the principles set out in the memorandum with regard to cooperation between labor exchanges and local education authorities, issued by the boards of trade and of education on the 3d January, 1911.

2.—(*a*) For the purpose of the exercise of these powers, the education committee shall appoint a special subcommittee, to be known as the juvenile employment subcommittee, and to be constituted as follows: .... members of the education committee; .... members of .....

[*In constituting the subcommittee provision should be made for securing an adequate number of members possessing experience or knowledge of educational and industrial conditions.*]

(*b*) The divisional officer of labor exchanges for the district and the manager of the ..... labor exchange shall be invited to attend the meetings of the subcommittee, but will not be members thereof.

3. It shall be the duty of the subcommittee, subject to any directions of the education committee—

(*a*) to arrange for suitable information and advice with regard to the choice of employment to be given to boys and girls, directly or through their parents, both before and after they leave school;

(*b*) to cooperate with the local labor exchange officers in registering applications of boys and girls for employment, and in selecting applicants for suitable vacancies;

(*c*) to advise the Board of Trade with regard to the management of the labor exchange in relation to juvenile applicants for employment.

4. In carrying out their duties the subcommittee shall—

(*a*) take every opportunity of encouraging boys and girls to continue their education after leaving the elementary school;

(*b*) study the conditions of employments as these affect the prospects of boys and girls and the need and facilities for continued education; for which purpose the officers of the labor exchanges will furnish the subcommittee with all the information in their power with regard to the prospects and conditions of employments;

(*c*) use as far as possible the services of apprenticeship committees and other organizations for promoting the welfare of boys and girls, and of individual voluntary workers; for which purpose they may, where they think fit, organize care committees or after-care committees of teachers, school managers, and others, whose duty it shall be to keep in individual touch with boys and girls both before and after they leave school.

5. In carrying out its duties the subcommittee shall have at its disposal the services of the director of education, who shall have the assistance of the following officers to be specially appointed for this purpose:

6. The work of the subcommittee in connection with the registration of applications for employment shall be conducted at a central office to be jointly established by the authority and the Board of Trade under the name of the "..... Juvenile Employ-

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ment Exchange and Bureau," and to be situated in ..... An officer or other representative of the subcommittee shall be regularly available at the exchange and bureau, in order to interview applicants for employment and to confer with the officer in charge of the juvenile work of the labor exchange before the names of applicants are submitted to employers.

7.—(a) The head teacher of each day school shall furnish the subcommittee at the exchange and bureau with information as regards the employment obtained by each pupil leaving the school, and with a report as to the character, conduct, and capabilities of the pupil. The subcommittee shall also be furnished with a copy of any report made by a school medical officer on each such pupil, and of any school record or leaving card given to the pupil on leaving.

(b) If any pupil has not, within ..... before leaving, obtained suitable employment, and the assistance of the committee is desired on his behalf, the head teacher shall forward to the subcommittee an application on the form prescribed in the schedule to the special rules with regard to the registration of juvenile applicants made by the Board of Trade on the 7th of February, 1910, subject to such modifications as may be made therein by the Board of Trade from time to time.

8. Boys and girls desiring employment who have left school, but are below the age of 17, shall apply in person at the exchange and bureau and will be registered by an officer of the labor exchange. This officer will arrange for such applicants to be interviewed by the representative of the subcommittee, either at the time of registration or as soon as possible thereafter, in order that they may be fully advised before vacancies for employment are brought to their notice, and that the desirability of continuing their general education may be impressed upon them.

9. All applications for employment which reach the exchange and bureau either from the schools or from individual applicants shall at once be made available for the use both of the subcommittee and of the officer of the labor exchange.

10. The officer of the labor exchange will be responsible for—

(a) bringing the facilities offered by the juvenile employment exchange and bureau and the utility of its work under the notice of local employers;

(b) registering all notifications of vacancies received from employers;

(c) submitting to employers the names of suitable applicants for vacancies.

11. Before submitting to an employer the name of any applicant for a vacancy notified by that employer, the officer of the labor exchange will in all cases in which it is practicable consult the representative of the subcommittee as to whether the employment offered is suitable for the applicant. He will in no case submit the name of any boy or girl who is in attendance at an elementary or other day school, or has left a day school not more than six months before, without the express consent of the subcommittee's representative. He will also inform the representative of the subcommittee as to the manner in which each vacancy is ultimately filled.

The joint memorandum issued by the Board of Trade and board of education referred to in the preceding circular has laid the foundation of the present relationship between the schools and the juvenile labor exchanges. While one can not say how long the policies laid down in this document will continue in their present form, there being a determined effort on the part of a number of leaders in child-welfare work to secure to the school authorities the exclusive control of the advisory and placement services for those under 17, the probabilities seem to be that for a long time to come the suggestions substantially as outlined in the following memorandum will be in force.

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MEMORANDUM WITH REGARD TO COOPERATION BETWEEN LABOR EXCHANGES AND LOCAL EDUCATION AUTHORITIES EXERCISING THEIR POWERS UNDER THE EDUCATION (CHOICE OF EMPLOYMENT) ACT, 1910.

1. We have had under consideration (*a*) the Education (Choice of Employment) Act, 1910, and (*b*) the Special Rules with regard to Registration of Juvenile Applicants in England and Wales made on the 7th February, 1910, by the Board of Trade after consultation with the board of education, under the Labor Exchanges Act, 1909, and printed as an appendix to the present memorandum.[1] Under the new act the councils of counties and county boroughs, as local education authorities, are empowered to make arrangements, subject to the approval of the board of education, for giving to boys and girls under 17 years of age assistance with respect to the choice of suitable employment, by means of the collection and the communication of information and the furnishing of advice. In the special rules of the Board of Trade two alternative methods are indicated by which information, advice, and assistance with respect to the choice of employment and other matters bearing thereon can be given to boys and girls and their parents in connection with the working of labor exchanges. Paragraphs 2 to 5 of the rules make provision for the establishment by the Board of Trade of special advisory committees for juvenile employment, which may, as one of their functions, take steps to give such information, advice, and assistance, but without any responsibility with regard thereto being undertaken by the Board of Trade or the officers in charge of labor exchanges. Paragraph 6 of the special rules contemplates the case of a local education authority which has and desires to exercise statutory powers for the purposes of giving information, advice, and assistance, and provides that, where such powers are exercised in accordance with a satisfactory scheme, the registration of juvenile applicants for employment shall not be conducted by the labor exchange except in accordance with the scheme, and that the Board of Trade may dispense with the services of a special advisory committee so far as the area of the authority is concerned. The enactment of the Education (Choice of Employment) Act, 1910, renders it possible for the procedure contemplated by paragraph 6 of the special rules to be brought into operation.

2. We are of opinion that the employment of juveniles should be primarily considered from the point of view of their educational interests and permanent careers rather than from that of their immediate earning capacities, and accordingly we urge upon local education authorities the desirability of undertaking, in accordance with the principles set out in the present memorandum, the responsibilities offered to them by the new act. We consider that it is of importance that these responsibilities should be exercised in the fullest cooperation with the national system of labor exchanges established under the Labor Exchanges Act, 1909, and the board of education will, therefore, before approving any proposals from local education authorities for the exercise of their new powers, require adequate provision to be made for such cooperation. Where a satisfactory scheme has been brought into force by a local education authority, paragraph 6 of the special rules will operate, and the Board of Trade will be prepared to recognize a committee of the authority as charged with the duty of giving advice with regard to the management of the labor exchange for its area in relation to juvenile applicants for employment. There are certain areas in which, pending the passing of the act, the Board of Trade have already established, or have definitely undertaken to establish, special advisory committees under paragraphs 2 to 5 of the special rules, and we presume that the local education authorities for these areas will desire to continue the arrangements already made, at least until some further experience has been gained, and will consequently defer the exercise of their powers under the act. So far as other areas are concerned, the Board of Trade do not propose to take any steps for the establishment of special advisory committees until after the

[1] See page 14, "Special rules," etc.

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31st December, 1911, except in the event of the local education authority passing a formal resolution to the effect that they do not propose to exercise their powers under the Choice of Employment Act.

3. We recognize that the methods to be adopted by authorities in working the act must necessarily be subject to considerable variations in accordance with local conditions, and will, in particular, be affected by the distribution of the labor exchanges, the districts of which are not necessarily coterminous with the areas of authorities. We think, however, that in normal cases some such arrangements as are indicated in the following paragraphs are likely to be found effective in practice and may be expected to insure a reasonable distribution and correlation of functions between the authorities and the labor exchanges.

4 The work to be undertaken by public bodies in giving assistance in the choice of employment for juveniles may be regarded as having two branches. In the first place there is the task of giving such advice to boys and girls and their parents as will induce them to extend where possible the period of education and to select, when employment becomes necessary, occupations which are suited to the individual capacities of the children and, by preference, those which afford prospects not merely of immediate wages but also of useful training and permanent employment. In the second place, there is the practical task of registering the actual applications for employment and bringing the applicants into touch with employers who have notified vacancies of the kind desired.

5 In any scheme of cooperation put forward under the new act the first of these two tasks—that of giving advice—should, we think, be assigned to the local education authority, with the assistance of such information as to the conditions and prospects of particular kinds of employment as can be furnished by the Board of Trade through the labor exchanges. We think that the authority should act through a special subcommittee, which may, perhaps, also be the subcommittee charged with the supervision of continuation and technical schools, and which should always include an adequate number of members possessing experience or knowledge of industrial as well as of educational conditions. In its detailed working, which should include the keeping in touch with boys and girls after as well as before employment has been found for them, such a subcommittee will, we trust, utilize to the full the services not only of teachers and of school attendance officers, but also of voluntary workers, whose activities may here find one of their most valuable educational spheres; but the work will be of a kind which depends largely upon skilled and effective organization, and it will probably be found desirable, as a rule, to put at the disposal of the subcommittee an executive officer, who will act as its secretary and maintain the daily contact between the authority, the voluntary workers, and the labor exchange.

6 As regards the second of these two tasks, namely, the registration of applications for employment and the selection of applicants to fill vacancies notified by employers, there is need for cooperation between the education authority and the labor exchange, and direct relations should be established between the subcommittee or officer of the authority and the officer in charge of the juvenile department of the labor exchange. For this purpose it will probably be found convenient for the two officers to be located in the same or contiguous buildings. At present a good deal of the work done in connection with the employment of children is done at the elementary and other schools at which the children are in attendance, and no doubt this will continue to be the case, at any rate so far as the giving of advice is concerned; but we desire to point out that the notification of applications for employment to a central office will increase the range of vacancies open to any one applicant and will therefore advance the fundamental object of placing each applicant in the employment which best suits him and to which he is best suited. We contemplate, therefore, that applications for employment from children still at school will continue to be received

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and entered upon the necessary cards by their teacher, but that the cards will then, generally speaking, be forwarded by him to the authority's officer. The applications from boys and girls who have left school can, we think, most conveniently be registered by the officer of the labor exchange, but arrangements should be made to admit of such applicants being interviewed by the authority's officer either at the time of registration or as soon as possible after, as it is desirable that they should be fully advised before vacancies for employment are brought to their notice. All applications received in either of the ways indicated should at once be made available either in original or in copies for the use both of the education authority and of the labor exchange. Notifications of vacancies for employment should be made to the officer of the labor exchange, who will furnish the authority's officer with information as to each vacancy for which he proposes to submit a boy or girl, and with the name of any boy or girl whom he proposes to submit for it. Information passing between the authority and the labor exchange will naturally be held to be strictly for the purposes of their cooperation. We anticipate that in ordinary cases the question whether a particular vacancy is suitable for a particular boy or girl will give rise to no difference of opinion between the two officers. It will, however, probably be necessary to provide for the possibility of a difference of opinion. We think, therefore, that as a rule the decision should rest with the authority's representative as regards any child who is still in attendance at an elementary or other day school or has not left the day school more than six months previously, and that as regards applicants who have passed this limit the decision should rest with the officer of the labor exchange, who will, however, consult the authority's representative in all cases in which this is practicable, and will in all cases inform him as to the manner in which each vacancy is ultimately filled.

7. Should any scheme be submitted for the approval of the board of education under the act in which it is proposed to vary these limits or otherwise to depart materially from the scheme of cooperation outlined in this memorandum, it should be accompanied by a full statement of the special reasons urged by the local education authority in support of the proposed variation. The special circumstances of the case will then be considered jointly by the two departments.

The activities of some of the earliest committees appointed in accordance with the joint suggestions just presented may be briefly summarized, details being reserved for the more extended account of the work in several cities to be found in subsequent chapters. This summary is based on the returns to the Board of Trade called for by the following circular to juvenile advisory committee secretaries issued in September, 1911: (The summary follows the circular.)

BOARD OF TRADE LABOR EXCHANGES.

JUVENILE ADVISORY COMMITTEES.

Circular No. 1.

As arranged at the meeting of juvenile advisory committee secretaries on May 29, reports were collected in July from all the committees already formed under rule 2 of the special rules with regard to registration of juvenile applicants in England and Wales, and are reprinted with some amendments in this circular. In addition to the committees referred to below, juvenile advisory committees at Dublin, Belfast, Londonderry, and Bath have now held their first meetings.

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The first of these circulars, which it is hoped to issue at intervals of about three months, was intended to be mainly formal, and to serve primarily as a record of the tentative measures already undertaken to secure the special treatment of juveniles by the labor exchanges which the Board of Trade have throughout regarded as necessary. Since, however, the more general aspects of this question appear to be frequently misunderstood, it may be well to preface the first circular with a short historical account of the question.

In section 2 (5) of the Labor Exchanges Act, 1909, provision was made for the appointment of advisory committees; and in Regulation IX of the general regulations for labor exchanges, made on January 28, 1910, power was taken to make special rules with regard to juveniles in consultation with the board of education in England and Wales, the Scotch Education Department in Scotland, and the Lord Lieutenant in Ireland. No special rules have yet been made for Scotland, but special rules were issued for England and Wales on February 7, 1910, and for Ireland on January 11, 1911. Rules 2–5 in each of these sets of rules provide for the establishment of the special advisory committees for juvenile employment with which the present circular is concerned.

In Scotland, however, since the Education (Scotland) Act, 1908, school boards have had power to spend money for purposes closely related to the work of a juvenile advisory committee. It was also known when the special rules for England and Wales were issued that there was a prospect of similar powers being granted to local education authorities in England and Wales; and provision was accordingly made in rule 6 for the recognition by the Board of Trade of work of this kind done by local authorities.

In November, 1910, the Education (Choice of Employment) Act was passed, giving to local education authorities power to make arrangements, subject to the approval of the board of education, for giving to boys and girls under 17 years of age assistance with respect to the choice of suitable employment, by means of the collection and the communication of information and the furnishing of advice; and on January 3, 1911, the president of the Board of Trade and the president of the board of education issued a joint memorandum outlining a scheme which provided for cooperation between local authorities exercising their powers under the new act and the Board of Trade working through the labor exchanges. In this memorandum it was suggested that places where juvenile advisory committees had already been appointed would presumably wish to continue the arrangement already made at least until some further experience has been gained. Local authorities in other places were urged to undertake, in accordance with the principles set out in the memorandum, the responsibilities offered to them by the new act. It was pointed out that it was of the utmost importance that these responsibilities should be exercised in the fullest cooperation with the national system of labor exchanges, and that the board of education would, before approving any proposals from local education authorities for the exercise of their new powers, require adequate provision to be made for such cooperation. It was stated that the Board of Trade would not take steps to establish any further juvenile advisory committees of the existing type until after December 31, 1911, except in places where they had already undertaken to do so or in places formally deciding not to exercise their powers under the Choice of Employment Act. A limited number of schemes under the Choice of Employment Act have been submitted to the board of education for approval, and the first of them has been brought into working order at Birmingham. In the meantime, an interesting arrangement has been made with the Edinburgh school board by which all the juvenile work in Edinburgh is carried on by a labor exchange officer working in the offices of the school board and in cooperation with the school-board officials.

The Board of Trade have from the first recognized that the placing of young persons in employment entailed other considerations than in the case of adults. They

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recognized that there was need for the provision of advice by experienced persons, and they recognized the essential interest of education authorities in the matter by invariably consulting them with regard to the constitution of juvenile advisory committees. They welcome the increase of powers given to local education authorities by the Choice of Employment Act, and hope that wide advantage will be taken of them on the lines of the joint memorandum in districts where juvenile advisory committees have not been established.

Summary of Some First Reports.

LONDON.

The London juvenile advisory committee has appointed 13 local advisory committees to work in connection with the juvenile section of 13 of the London labor exchanges.

These 13 local advisory committees vary to some extent in their methods, but the following statements apply, generally speaking, to all of them.

They cooperate with teachers through the school care committees appointed by the education authority. Each committee contains two nominees of the local consultative committees of head teachers. The teachers and care committees fill up school-leaving forms for all the children who leave school, whether they have work to go to or not, and forward them to the labor exchanges.

Children are registered at the labor exchange in whose area they live (or to which the school-leaving form has been sent) by the officials or by members of the local advisory committee, or by approved "helpers" of the committee. They are interviewed by small rota committees consisting of two or three members of the local advisory committees, which meet at all hours of the day from 8 a. m. to 8 p. m.

At some exchanges there is a rota meeting every day. At other exchanges "set" rotas meet not more than two or three times a week, but some member of the committee or volunteer calls on most days of the week to assist the paid staff or give advice in cases of difficulty.

Wherever voluntary apprenticeship committees exist, the majority of local advisory committees refer cases of indentured apprenticeship to them.

Boys and girls are advised by the rota committees. The aftersupervisor keeps the subject of continued education before the minds of the young people. The London County Council education committee has drawn up for the use of the local advisory committees special pamphlets for each electoral division giving particulars of all the trade classes (day and evening) in London and all the evening commercial centers and evening schools in each particular division.

The school care committees organize the aftercare in cooperation with philanthropic agencies. The school care committees report to the local advisory committees twice a year or oftener if desired as to each boy and girl placed by the exchange.

The commercial, labor, and statistical department of the Board of Trade has visited several hundred employers in the ready-made women's clothing, the building, and the leather trades, and the information obtained as to each employer is filed at the local exchange. General reports on these trades are also being supplied. The Stepney local advisory committee has issued a circular to employers signed by 20 local employers.

BRISTOL.

A meeting of head teachers and school managers was held in February, 1911, to interest them in the work of the juvenile advisory committee and to gain their cooperation.

A report of every child leaving school is sent in to the secretary. The form for receiving this is attached to the Bristol education committee's school leaving card, which every child receives when leaving school. It is filled up by the head teacher a

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few days before the actual leaving date and is detached from the card and sent to the secretary, only the address of the labor exchange being left for the child.

This arrangement was made to lessen the work of the head teacher, so that he or she should only have one form to fill up, the slip being part of that one form.

Vacancy lists for girls are sent to the head teachers of the girls' departments every month. The National Union of Teachers has four representatives on the committee. The education committee's "letter to parents" (issued to parents through the head teacher when the child leaves school) has a paragraph on the work of the juvenile advisory committee. A placard has been sent to every head teacher to place in his or her school.

There is at present no cooperation with factory surgeons.

The children are registered at the exchange only. They are encouraged to come if possible when the rota of members is sitting but are also registered at the exchange at any time when the office is open. The teacher's report upon the child is copied onto the back of the registration card.

Members of the juvenile advisory committee attend in rotas of four every Saturday morning at 10 and every Monday afternoon at 3.

Every child is registered first in the usual way by the secretary and all additional information obtained by the rota is kept in an index book of rota interviews.

A list of vacancies, with particulars of each vacancy, is provided for the use of each member of the rota, and when there is a suitable vacancy the child is sent to apply straight away with the usual green card. If there is no suitable vacancy at the moment the child is, of course, encouraged to come again in a few days to the exchange.

The parents of every child leaving school are sent a form on which the days and hours are given when the rotas of members sit.

There are no apprenticeship or skilled employment committees in Bristol. Arrangements are being made to try to gain the cooperation of existing societies which pay premiums for apprentices.

Every effort is made by the rotas of members to urge attendance at evening schools, etc., and the "after-care" visitors also are using all possible influence in that direction.

After-care has just been started, and an "after-care" subcommittee of the juvenile advisory committee has been formed.

To carry out the work Bristol has been divided, according to schools, into five districts. Twelve visitors have been appointed as a start, nine of them being members of the juvenile advisory committee, and the others, Miss Deane (lady supervisor), Miss Tivy (secretary), and one voluntary worker.

To commence operations only the children placed in work since the juvenile advisory committee started work are being visited. It is intended to extend the work, if possible, to every child registering at the exchange.

A card containing all the necessary information about a placed child is given to the visitor, a duplicate copy being kept by the secretary. The report is to be entered on another card, of which the visitor is provided with two copies, one to be retained and the other to be forwarded to the juvenile advisory committee. It is suggested that reports should be sent in once a quarter.

It is intended that the present staff of visitors should suggest for the approval of the "after-care" subcommittee at its next meeting names of other visitors for their respective districts, if possible the names suggested to be those of people already interested in, and with a knowledge of, the district.

No philanthropic agencies have as yet been approached.

A subcommittee for the cooperation of employers has been formed. The standard circular letter to employers has been sent out and followed in some cases by a more personal letter from the chairman.

Books of order forms and forms on which to notify vacancies for apprentices are in use.

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Inquiries are being made into local industries and details are being collected with a view to compiling books on somewhat similar lines to those entitled "Trades for London Boys and How to Enter Them," and "Trades for London Girls and How to Enter Them."

The secretaries of the trade unions have been asked to fill in forms giving details of employment in their particular trades, and a good deal of useful information is being got together.

The following suggestion is to be considered by the committee: "Advisability of asking the chamber of commerce to cooperate in the committee's endeavor to increase the attendance of children at continuation schools."

NOTTINGHAM.

Prior to the opening of the labor exchange in Nottingham, the local education authorities had instituted an ex-scholars' employment bureau. This office, together with the efforts of the teachers, resulted in some good work being done. The establishment of the juvenile advisory committee, which includes two nominees of the county education committee, rendered possible the coordination of the work of the various societies dealing with children in the town.

All children are registered at school on a form which provides for the child's inclination, the teacher's view, and the medical officer's report being briefly stated. These particulars are filed on cards at the labor exchange, and are referred to if and when the child applies for employment. The child is given a card report form which it carries with it, and which is demanded by the officials of the labor exchange, evening schools, and elsewhere.

Efforts are made to register children some months before leaving school, and they are advised through their teachers as suitable vacancies are notified to the labor exchange.

All cases of doubt or difficulty either with children or employers are referred to a rota committee of the main committee. These rota committees meet once or twice a week at varying hours, and children attend with their parents to consult the committee. In addition, such members as are able attend during the office hours to inspect and advise on the work and superintend the efforts of the secretary. Complete cooperation with the local education authority has been secured on these lines, while, in addition, the authorities of boy scouts, boys' brigades, boys' and girls' clubs, the charity organization society, and similar organizations regularly submit young children for advice and in other ways assist.

Children's care committees have been set up with the cooperation of the local managers at all the larger schools in the town. It is hoped that such committees will exist shortly at every school. One of these committees has enrolled 50 voluntary visitors, while special visitors are also attached to the juvenile advisory committee.

A letter to employers and an explanatory memorandum were sent out early in the year.

In addition the secretary has addressed a number of meetings in the town.

Employers are canvassed regularly by labor exchange officers, and orders for juveniles are taken on a special form. These forms insure that a great deal of information is available in respect of every juvenile order, and it is in turn passed on to the rota committee or the contents communicated to the children.

Special conditions.—In Nottingham it is possible for children to leave school at the age of 13, providing they have made a certain number of attendances and can prove to the satisfaction of the education committee that they have beneficial and necessary employment.

To prevent, so far as possible, children going into unsuitable situations, each child before he is given an exemption certificate must register at the labor exchange.

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If he has not found suitable work for himself and there is none for him at the exchange, he must return to school until a suitable opening comes. In this way it is possible to prevent children running about the streets on the pretense of looking for work.

Special work.—The following subjects have been dealt with by the committee during the last six months:

1. Age at which school children should be registered.
2. Small wages of juvenile workers and the short periods they retain their work.
3. Specialized training for the children in the last year of their school career.
4. Number of children registered under the age of 14.
5. Inquiries into certain trades considered unhealthy and demoralizing for young persons.
6. Report on proposed scheme for classes for unemployed boys, and training centers for girls in trades for which the demand exceeds the supply.
7. Report on number of children who are wage earners while still at school.
8. The committee have under consideration a scheme for cooperation with the certifying surgeon with a view of following up cases rejected by him for physical incapacity.

DEWSBURY.

As each child leaves school the teachers inform the committee on a special form, which gives the name of the firm employing the child and the kind of work to be done.

The certifying factory surgeons for the Dewsbury district report to the committee on every child who is rejected from employment. The secretary then visits each child and obtains for him or her either suitable employment or medical treatment if necessary. Several cases have occurred to show how necessary this work is. One child was found to have been working three months after being rejected by the doctor, and in practically every case where children have been rejected, owing to some defect which a little medical attention would remedy, nothing had been done until the secretary called. Every case notified of this kind is now receiving medical treatment. There should be no difficulty in obtaining the cooperation of certifying factory surgeons in every town where a juvenile advisory committee exists, as many doctors have long recognized the need for some measure of after-care for these children.

The secretary visits every elementary school once in three months to register those children who have reached the age of 12 years and 9 months—that is three months before they can possibly leave school. As Dewsbury is not a very large town, this only means visiting two schools each week. The great advantage of this system of registration is that it brings the secretary into touch with every child about to leave school. When registering the children the secretary is very careful not to suggest employment, but points out the advantages of remaining at school until 14 years of age. Great care has to be taken in this direction, as the fact of registering the children must not be allowed to act as any encouragement to them to leave the elementary schools at 13 years of age. The majority of the children in Dewsbury do leave school at that age, and if the advisory committee did not register the children until they had reached the age of 13, it would be too late to be of any use to them in advising them as to their choice of employment.

A rota meets for this purpose once a month at the labor exchange. Only two meetings have been held so far, but a good number of parents have attended.

(1) *After-care.*—The work of after-care is undertaken by a very excellent "after-care committee" already in existence in Dewsbury. This committee is a school after-care committee and works in cooperation with the school doctor. The organization of this committee is excellent, there being a visitor attached to each school. The secretary of the advisory committee will simply supply to each visitor a list for each school.

(2) *Cooperation with philanthropic agencies.*—The only organization of the kind which has been of any service to the committee yet is the N. S. P. C. C. Their local

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inspector is notified in cases of neglect and cruelty, and is able to be of great service, especially with regard to the children rejected from employment by the certifying factory surgeon. When a case occurs where medical treatment is urgently needed and the parents after repeated visits fail to obtain this, the case is reported to the N. S. P. C. C., and usually one visit from their inspector produces the desired effect.

The secretary visits all the large employers in order to enlist their interest and support for the work of the committee. Circulars are also sent out at intervals explaining the objects of the committee.

HUDDERSFIELD.

The head teacher of every senior school in the district is provided with a supply of leaving cards, and the education committee has issued instructions that one is to be filled up and sent to the juvenile advisory committee for every child who leaves school. Teachers are requested to send in the cards at least a fortnight before any child leaves. In order that the first suggestion of leaving shall not come from the teacher to the child, there is a general instruction issued that all children proposing to leave school shall give at least a fortnight's notice to the head teacher. Before filling up the leaving card, teachers can use what persuasion is possible to induce parents to leave their children at school longer.

Meetings of teachers have been held and addressed by the manager of the exchange, who has explained to them the purposes of the advisory committee and asked for their full cooperation. The teachers as a body have expressed their keen sympathy with the work.

The certifying factory surgeons have agreed to supply a periodical list of the children they reject for factory and workshop employment, together with the reasons for their rejection. Special attention will then be devoted to such children.

The school medical officer is also cooperating by giving reports on the physical condition of each child, and has arranged to give a special report on any particular boy or girl when requested.

Immediately on receipt of a leaving card from the school, a circular is sent to the parents of the child, informing them of the objects of the advisory committee and requesting them to consult with the committee as to the placing of their child, or, if that is inconvenient, to send the child to the labor exchange with a special form, which is sent out with the circular, filled up, stating what occupation the parents desire for the child, and some other particulars.

When a boy or girl is actually leaving and application is made personally at the exchange, the registration is entered on the industrial registration card, which is then attached to the school leaving card and placed in the live register and dealt with in the usual manner. Later on these two cards, together with visitors' reports and any other documents relating to the child, are put into a special envelope made for the purpose, which fits into the card register. The whole record of each child is thus kept together.

On every alternate Monday evening a rota of three members of the advisory committee meets at the labor exchange to interview parents. The parents of every child whose leaving card has been received during the fortnight are advised of this rota meeting and are urged to attend and consult the committee. Parents who can not come then may consult the secretary or the manager of the exchange at any time, and they report to the committee. If a child comes at any time without its parents the secretary endeavors as far as possible to ascertain the parents' wishes.

(1) Every head teacher is supposed in the first instance to recommend each child leaving school to continue his or her education at a continuation school, and to suggest suitable courses for the work he or she is likely to enter upon or is specially fitted for.

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(2) In sending out the circular to parents on receipt of the leaving card from school the exchange incloses a pamphlet supplied by the education committee giving full details of the continuation classes. The circular states that any further information will readily be supplied at any time.

(3) The committee decided that every boy and girl leaving school should be visited at least once, whether placed through the exchange or not, in order that the advisability of encouraging their children to attend suitable continuation classes might be impressed upon the parents.

(4) The rota committee urges all parents who come before them to attend to the continued education of their children.

(5) The officials at the exchange take every possible opportunity to recommend the continuation schools, and display posters in the waiting rooms.

(6) The after-care visitors are strongly urged to recommend attendance at continuation schools. Arrangements are in hand for next winter session to get reports from time to time of children who are irregular in their attendance at the evening schools, and these will be visited by the after-care visitors.

(7) The after-care visitors are being organized into district committees, each with an evening continuation school as its center, and it will be the duty of each committee to feed that school with boys and girls, and to overlook the attendance and progress of such boys and girls.

(8) Arrangements are being made to insure that one visit shall be paid in September just before the opening of the evening classes to every boy and girl who has left school during the year and to every juvenile registered in the exchange during this year.

(9) At the end of each evening school session a report is sent to the advisory committee on the number of attendances and progress of every boy and girl who has attended the schools. The back of the school leaving card is specially printed and ruled for entering these reports, and if attendance has not been made, or has been irregular, or the progress has been unsatisfactory, after-care visitors can be requested to pay special attention to such cases and endeavor to secure better results in the next session.

(10) It has been found that certain Band of Hope and Sunday school meetings are held on the same evenings as the evening schools are open.

The committee is conferring with the Band of Hope Union, the Sunday School Union, and other bodies responsible, with the hope of avoiding such overlapping in future sessions.

The after-care visitors have been enrolled by the after-care subcommittee of the advisory committee. Special circulars were sent out to all day school teachers, Sunday school teachers, managers of boys' and girls' clubs, scout masters, and any other societies or individuals thought to be interested. Over 100 visitors have thus been enrolled. A card register has been made, each card containing particulars of the cases given to them to report upon and the dates of the reports made. A large number of day school teachers have volunteered for this work.

As explained in no. 5 above, the after-care visitors are being organized into district committees, each with an evening continuation school as a center. Members of the advisory committee will in each case be chairmen of these district committees.

Meetings of the voluntary visitors have been held at the exchange, at which the chairman of the committee and the manager of the exchange explained the work of the advisory committees and instructed the visitors in the work they were required to do.

Arrangements are in hand for a big public conference on after-care work to be held in October, with the Dean of Norwich as principal speaker.

Employers have been approached by special circulars asking for their cooperation with the committee. No need has arisen for special efforts, other than the ordinary

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methods of the exchange, to get employers to notify vacancies. There are always from 100 to 150 or more vacancies for boys unfilled and about 80 for girls.

The committee have had this matter under consideration but no special steps have been taken up to the present, though the committee are desirous of ultimately having a full and detailed knowledge of the conditions of each local industry. At the January meeting the following resolution was moved, but was adjourned sine die:

"That a committee be appointed to inquire into the nature and extent locally of the employment of boys and girls in occupations which do not provide employment in adult life, and of alternate occupations in which no juvenile labor is employed and which accordingly have to recruit from adult labor shifting from other occupations, and to report thereon, with such recommendations as they may agree upon for preventing the evils arising from such 'blind alley' occupations."

At the request of the committee the manager of the exchange prepared a report on "blind alley" employment in local industries, based upon the report of Mr. Cyril Jackson to the poor law commission on "boy labor."

LEEDS.

The advisory committee in Leeds consists of: Six education committee representatives (including 1 secretary for education, 2 lawyers, 1 trade unionist, 2 teachers), 3 employers of labor, 3 trade unionists, 2 teachers, 2 others.

There are 14 men and 2 women on the committee.

District employment committees are being established. The first has already been appointed, and consists of 4 teachers and 6 others.

(i) *Teachers.*

(*a*) There are 3 elementary school teachers and 1 secondary school teacher on the advisory committee for juvenile employment.

(*b*) There are 4 elementary school head teachers on the central district employment committee which has recently been appointed.

(*c*) A few teachers assist in visiting children.

(*d*) Teachers forward particulars of every child before he or she leaves school.

(ii) *Certifying factory surgeons.*

Three of the four certifying factory surgeons for Leeds have agreed to furnish particulars of rejected children. The same form will probably be used as is already in use at Dewsbury. The surgeons will be supplied with forms and official envelopes addressed to the secretary of the advisory committee. It is hoped that the other surgeon will also agree to furnish particulars.

It is intended to visit each of the rejected children at their homes. Results will be reported to the surgeons and to the advisory committee, and noted on the cards of the child.

Head teachers have been requested by the secretary for education to forward school-leaving cards to the advisory committee at the beginning of the month for all children who will leave during that month.

All children who leave under the age of 14 (the great majority of the children in Leeds) have to come to the education offices to obtain an "employment certificate." They can not actually obtain a labor certificate entitling them to leave school until the employment certificate has been signed by an employer, who thereby pledges himself to employ the child. Either the children or their parents have to make at least two journeys to the education offices to obtain the labor certificate. The juvenile department of the exchange has recently been moved to special offices opposite the education offices. The attendance department now insists on every child or its parents coming to the juvenile advisory committee's offices as a matter of course before the certificate is issued. In this way the great majority of the children are

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actually seen personally before they leave school, and notes are made on the registration card.

The record of the first situation obtained by all children who leave under 14 is also obtained through the attendance department, which every week lends to the secretary of the advisory committee the whole of the employment certificates, bearing the signatures of employers, which have been issued during the past seven days. In this way a beginning is made with the obtaining of a complete employment record.

Most of the parents and children come to the attendance department between 4.30 and 6 p. m. Arrangements have recently been made by which one member of the district employment committee will attend every day at this time to interview parents of children.

No apprenticeship or skilled employment committees exist in Leeds. Girls are occasionally referred to a domestic servants' registry recently started by the Girls' Friendly Society.

Notices advertising the evening classes arranged by the education authority are exhibited at appropriate times of the year in the juvenile departments of the exchange. Every occasion is taken of recommending attendance at evening schools, both by exchange officers and visitors.

A special circular has been sent out to voluntary organizations dealing with boys and girls aged 13 to 16, together with a report form for use in connection with boys or girls who belong to such organizations and have been placed.

Up to the present, the visiting of placed boys and girls has been done wholly by voluntary workers (about 60 in number), who have been enrolled by the exchange. The supervision of this work will gradually be taken over by the district employment committee.

About as many children are in the "lapsed" column of the monthly return every month as in the "placed" column. Among these "lapsed" children are probably included those which need most attention, since presumably the most efficient children are placed. It is hoped gradually to obtain enough voluntary workers to visit all the "lapsed" children as well as the "placed."

It is found that for the better class of situation it is necessary to approach employers for a particular applicant—canvass possibly a number of employers for one boy or girl. The vacancies which are notified by telephone on the employers' own initiation are, on the whole, below the average in quality.

A detailed inquiry into the printing trade in Leeds is nearly completed and some progress has been made with the building trades.

In addition to inquiries into particular industries, the following points appear to need special attention:

(i) Comparison between the wages of skilled and unskilled juvenile workers. (The difference appears to vary in accordance with the intensity of the demand for juvenile labor. It is accordingly probably much less in Leeds than in the textile towns).

(ii) A study of the hours of labor: The maximum of 60 hours in nontextile factories and workshops, and the complete absence of any legal regulation of the hours of labor for office and transport workers (including errand boys) appears to result in the working of excessive hours by many young persons in Leeds—especially errand and messenger boys and certain classes of office boys.

In the beginning of this work a great deal of time was necessarily spent on details of organization, such as location of offices, printing of forms, conferring with local school officials, and forming the advisory committees. Conferences of teachers and social workers with the labor-exchange authorities were frequent. Some of the points brought out then are still worthy of serious consideration.

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For instance, at the initial meeting in Exeter the school people insisted that it would be a mistake to post notices calling attention to the labor exchange where such notices might tempt the children to leave school. Everywhere the first effort made was to interest the teachers in the work of the advisory committees. Cooperation with the school may fairly be said to be the keynote of the juvenile labor exchanges.

There are schools which, because of their personal interest in the vocational future of their children and because of long contact with employers, have always been active in finding employment for their pupils. There are instances where for many years employers have been accustomed to secure each year from certain principals the pick of the leaving classes. In the opinion of competent observers, however, the practice of permitting employers to secure their help from teachers who are generally unacquainted with industrial affairs is undesirable and dangerous.

Not only was cooperation with the schools sought for at the starting of the labor exchanges, but beginnings were made, too, in enlisting the help of the school medical inspectors and the certifying factory surgeons. The industrial district of Dewsbury illustrates the type of service sought. The factory surgeon for the Dewsbury district reports to the advisory committee on every child who is rejected from employment because of any physical handicap. The committee's secretary then visits such a child and endeavors to obtain for it either suitable employment or necessary medical treatment. It was found in the early cases that children had been working for months after being rejected by the doctor because of defects which slight medical care would remedy, but no attention was paid to these defects until the secretary hunted up the children.

With much good sense the education authorities and the Board of Trade have made allowance for local sentiment regarding methods of organizing vocational assistance to children. Although both authorities aim at a degree of centralization, yet it appears that where local communities develop advisory and employment plans of their own, there is no serious interference. When Birmingham, for example, decided to operate under the education act, there was no difficulty in connecting the newly established juvenile labor exchange and its advisory committee with the undertaking of the local education authorities.

Many intricate problems have arisen in the working out of both the Choice of Employment and the Labor Exchanges Acts. They are by no means all solved as yet. Both acts ought to be regarded in their practical operation, therefore, as somewhat experimental and in the process of modification.

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For the sake of clearness the situation with regard to the two acts just mentioned is summarized. In England and Wales two methods of administering juvenile employment schemes are in operation: One is the Board of Trade scheme, whereby that board conducts a juvenile labor exchange as part of the national system of labor exchanges throughout the country, and furnishes both the funds and the officials. In such case the board appoints a local committee of representative men and women, called the juvenile advisory committee, whose duty it is to cooperate with the exchange officers. London affords a striking example of this type of development. In Ireland it is the only scheme before the public.

The other method permits the juvenile exchange to be administered by the local education authority, namely, the education committee of the council, provided that said local authority submits a scheme to the board of education which can be approved under the joint memorandum already described. On approval, the board of education sanctions a grant of money in aid of the advisory work of the local labor exchange. It will be seen that this is an adaptation of the plan followed by Scotland in organizing its employment information bureaus in close coordination with the schools, some time before the national system of labor exchanges came into existence. Nearly two score local education authorities are now conducting such school advisory and employment agencies, the best known being those in Birmingham, Liverpool, and Cambridge. A dozen or more additional cities and towns have submitted schemes which are awaiting approval.

As regards the plan of work there are certain basic features common to all the juvenile labor exchanges, whether under the Board of Trade or the local education authorities. These features are, first, keeping a record of the children leaving school for work; second, offering advice and guidance to boys and girls between 14 and 17; third, granting interviews to parents and others who desire to consult the officials; fourth, keeping a register of the positions open. Perhaps the most striking of these features, and it is at this point that nationalization is the strongest, is the opportunity now open to boys and girls for individual advice and care when leaving the elementary schools. The schools have to turn over to the juvenile bureau the printed card forms on which are entered particulars as to health, character, aptitudes, etc., of all the leaving pupils. These records have to be passed in for all pupils, whether they desire assistance in securing employment or not. The records are not always thorough or intelligible, because not all teachers and schools perform this duty conscientiously. Indeed, some records seem to be valueless; still this is not a criticism of the scheme as a whole, for such deficiencies are

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remediable. The school usually puts itself on record with the records of its children.

In places where the Board of Trade has established juvenile labor exchanges, permission is secured from the education authority to distribute Board of Trade circulars and forms in the schools; to the local advisory committee the Board of Trade usually appoints several teachers, principals, and education committee members.

These advisory committees represent a vast amount of unpaid public-spirited service. They are unique to England. The juvenile labor exchanges have profited greatly by their interest and cooperation. In London and elsewhere these committees are divided into subcommittees known as "rotas," in sessions of which the members take turns in personally advising the outgoing boys and girls. American opinion regards the task of interviewing and advising as perhaps the most complicated and delicate service in vocational guidance, one demanding insight, expert knowledge, and a specialized training besides. That volunteers should undertake so difficult a task argues leisure and great devotion. It seems hardly probable, however, that this particular feature of the English work will be permanently left to the volunteer. Guidance during the critical years of adolescence is, as has been indicated, the principal aim of the Choice of Employment Act, with employment as a secondary consideration. The grant allowed by the board of education is specially stated to be in aid of the executive officer, or officers, appointed by a local education authority for this work:

> In view of the great importance of the duties of such an officer, and of the necessity of securing thoroughly adequate qualifications, the board is prepared to make annual grants in aid of approved salaries paid to executive officers in respect to duties carried out in accordance with the scheme under section 1 of the Choice of Employment Act.

The Board of Trade scheme expressly disclaims responsibility with regard to any advice or assistance given by its committees. The education officers, on the other hand, representing, as they do, the locally elected authority, which is accountable to a local constituency, act, as a matter of course, with a lively sense of intimate and responsible relationship to the children. The school employment bureaus are not without advisory committees of their own. Members of the care committees, which have been dealing thus far with school feeding and other needs of poor children, are rapidly including vocational assistance among their duties, while frequently they are appointed to the Board of Trade juvenile advisory committees.

A detailed description of a few of the foremost vocational aid enterprises in England and Scotland now follows, the work in Liverpool being first under consideration.

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III. LIVERPOOL.

The juvenile employment committee of the Liverpool education committee, organized under the provisions of the Choice of Employment Act, began work in the summer of 1911. Offices devoted wholly to the purpose of the juvenile employment registry, with separate waiting rooms for boys and girls, were opened in the education building. The staff consists of the following officers, viz: A superintendent (acting under the direction of the director of education); a woman visitor; a man visitor; a junior clerk.

The plan of the Liverpool committee embraces the following aims:

(1) The collection and dissemination of information relating to the industrial conditions prevailing in the city.

(2) The furnishing of advice to young persons as to occupations for which they are best fitted, having regard to their education, ability, physique, predilection, and status.

(3) The encouragement of young persons to continue their education at evening classes and technical schools.

(4) The keeping of records showing the occupations taken up by children on leaving school.

(5) The maintaining of the central office with the schools acting as suboffices, for the registration of young persons applying for employment, and submitting suitable applicants for the vacant positions notified by employer.

(6) The supervision of young persons after they have taken up work, for the purpose of assisting in cases (*a*) where advice may be needed regarding the facilities which exist for extending a child's education, and (*b*) where other and better employment is sought.

A large advisory committee of employers representing the leading commercial, trade, and professional organizations of the city has been formed to help in the employment work.

Extraordinary efforts, as is well known, are always needed in order to vitalize a large committee and make it mean something. More important, from the writer's standpoint, is the cooperation of the Liverpool social workers,[1] who, among other services, are compiling a handbook showing the nature of the employments open to children.

One of the noteworthy activities observable in almost all the schools and institutions visited during the course of this inquiry is the extent of industrial investigation for the purpose of preparing occupational handbooks. The Liverpool education authorities are energetically promoting provisions for continued training, although unfortunately here, as in our own country, it is the evening school which is advocated. However, many children are doubtless thus assisted to some further training during employment.

[1] These are heads of settlement houses, boys' club leaders, girls' club directors, etc.

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Many teachers in Liverpool are acting as subagents, so to speak, of the central employment offices, but some are undertaking independent placement work. One finds, then, in Liverpool the central committee, the teachers and masters, and the Board of Trade labor exchange, all more or less engaged in placement activities, not always correlated. This situation, despite much individual good work, is deplorable; cooperation amongst these valuable agencies is greatly needed.

On the other hand, this community is not unaware of the waste in the present duplication of effort, and there are promising indications that Liverpool may yet work out one of the most effective instrumentalities for launching boys and girls in vocational life. A good idea of the nature of the discussions which take place at meetings of the juvenile employment advisory committee may be gained from an inspection of the minutes or proceedings of a typical meeting. The following is therefore presented, reporting a meeting presided over by Mr. Legge, the director of education in Liverpool:

At a meeting of the juvenile employment (advisory) committee held at the education office on Thursday, April 10, 1913.

James G. Legge, Esq., in the chair.

A statement as to the work accomplished by the juvenile employment registry in placing boys and girls in employment and furnishing advice, during the six weeks ended the April 5, 1913, was read and noted.

The chairman reported, with reference to the decision of the committee at their last meeting to invite the Master Builders' Association to send representatives to a conference to discuss the question of the difficulty in obtaining boys to enter the building trades, that a few members of the association had kindly consented to be present to-day. The members who attended were Mr. J. S. Brown, representing the carpenters and joiners; Mr. H. Cubley, representing the plumbers and painters; Mr. J. B. Johnson, representing the plasterers and slaters.

The chairman mentioned that inquiries which the committee had made from parents elicited the following reasons for not putting their boys to the joinery, plumbing, painting, decorating and paperhanging, bricklaying, plastering, and machine joinery trades:

(1) That a seven-year apprenticeship is too long; (2) that apprentices' wages during the first few years are not high enough; (3) that there is a certain amount of unemployment in all of the trades, and particularly in the painting and decorating; (3) that the plumbing and painting are unhealthy.

The representatives gave an interesting and informative account of their experience on these points, which may be summed up as follows:

(1) That the master builders generally have little trouble in obtaining apprentices, and that the best firms kept a waiting list made up to some extent by the sons of their own workmen, but that recently there appeared to be some difficulty in finding boys for house painting; (2) that the period of apprenticeship was too long, but they were opposed to a boy finishing his term before he was 21 years of age, though admitting that boys were preferred for the trade at 14 years of age; (3) that the wages in the early years of apprenticeship were lower in Liverpool than in inland towns; (4) that unemployment existed in some degree, but it was chiefly in the painting trade, and the other trades were scarcely affected by seasonal slackness, the weather, etc., but

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the fact that when a boy came out of his time his employer was obliged, under the association rules, to pay him at the full rate of wages made it sometimes difficult for him to get work, as preference was usually given to the experienced journeyman; (5) that, with due caution exercised on the part of the men, plumbing and painting were not unhealthy trades.

It was further stated that parents should insist upon the boys being properly indentured, as otherwise there was a great temptation to a boy to break away during the last year or two without finishing his apprenticeship. The rules of the association required masters to bind all their apprentices.

Mr. Brown (speaking as a master joiner) was strongly of opinion that a boy should not be placed to machine joinery without some knowledge and experience of building joinery, as there were certain marks and symbols used on the timber which were unintelligible to a boy unless he had had some training in the latter branch of the trade.

Finally, the representatives were of opinion that should this committee see their way to suggest to the Master Builders' Association that the commencing wages of apprentices should be raised, the question would receive sympathetic consideration.

The representatives were thanked for their kindness in attending the meeting, and then withdrew.

The chairman reported the progress which had been made in the formation of evening classes for the preparation of boys for the mercantile marine, according to the scheme which was recently drawn up by the juvenile employment committee.

The following papers and forms give an insight into the office detail of the Liverpool scheme. The first is a draft letter from head teachers to parents:

EDUCATION COMMITTEE, CITY OF LIVERPOOL.

.....School,

.....Dept.,

.....

DEAR SIR OR MADAM: I am desired by the education committee to call your special attention to the steps they are taking to give advice and guidance regarding the occupations young people should take up on leaving school. It is becoming more and more a matter of serious concern that, through want of information or proper guidance, children on leaving school drift into employments offering good wages for the moment, but affording no real preparation for earning a living in later life. At 17 or 18 such employment usually comes to an end, and it is then too late to take up any skilled occupation.

Furthermore, due regard is not always paid to the capacities or inclinations of the children, with the result that a certain number take up work for which they are unsuited and which they dislike. The consequence can only be much waste to the community at large and disappointment to employers, parents, and children.

The committee are anxious to cooperate with parents in improving matters, and are making arrangements to the best of their power to collect useful information, and to afford, as far as possible, means for giving advice. In both of these I have been asked to assist so far as my own school is concerned, and I very willingly undertake the task.

The committee also feel strongly the importance of evening continuation schools, and wish to urge parents to allow their children to take full advantage of these and thus make themselves more efficient and their services of greater value.

Your..... informs me that (s)he will soon be leaving school and that she wishes to obtain a situation. If you desire advice or help, will you kindly come and see me at this school on.....at.....o'clock, when her (his) class is over and I will be glad to talk over with you your child's future. You may be

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sure that we will do all in our power to help you, and that our efforts will be supplemented by those of the director of education and the staff at the education office in Sir Thomas Street.

I am yours, faithfully,

.....,

Head Teacher.

There are also letter forms to be addressed to boys and to girls.

TO BOYS.

CITY OF LIVERPOOL, EDUCATION OFFICES.

JUVENILE EMPLOYMENT COMMITTEE.

To.....:

1. The juvenile employment committee learn that you will shortly be leaving school. They hope that, with your parents' help and approval, you have found, or will find, some suitable employment to go to. The choice of this is very important for you. It is not difficult for you to find a situation, but if it is one which will only employ you for two or three years, without any prospects of improving your position afterwards, you should not take it until you have your teacher's advice about it. Your teacher may be able to assist you, or will perhaps advise you to come to the committee's offices (at the address you will see at the top of this letter) and get advice there, which will be gladly given you. Do not decide in a hurry; very many boys and girls have done that and regretted it all their lives afterwards. You are not old enough, and you have not experience enough, to decide for yourself, so talk over what you will do, first with your parents, then with your teacher, and then, if you like, at the committee's office. The committee often hear of situations vacant. Of these they keep a list, and perhaps one of them might suit you if employment is not found for you in any other way.

2. Important considerations for you to bear in mind are these: You have to think of the future and not merely of the present; the man who knows a trade has always a better chance of success than one who is entirely unskilled, and often a better chance than a clerk in an office.

3. Remember, too, that the boy who works cheerfully and with industry has the best chance of getting on. Always be ready to do a little more than you are asked.

4. Do not give up one situation until you have got a better one. If you are in a difficulty your former teacher, or the committee's officer at Sir Thomas Street, will be willing to advise and help you.

5. The committee wants you to look upon them as your friends, for they are anxious to help you. There is one point to which they would wish your attention to be specially drawn. You ought not, on leaving your day school, to think that your education is completed, but should seek to join a suitable evening continuation school in your neighborhood. About this your teacher will advise you.

6. Finally, remember that whatever others do for you, you must put your own shoulder to the wheel.

The letter addressed to girls is similar in form and content to that to boys. The fourth paragraph applies to domestic service:

4. Again, many girls do not realize the advantages which domestic service has over many other forms of employment. To a girl who has to provide for herself the committee would urge that domestic service in a well-conducted household is one of the best occupations which she can take up, inasmuch as it may secure for her a good home, healthy work, sufficient wages to enable one to save, and, lastly, a training which may be invaluable in later life if one is called upon to manage a home of her own.

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Other forms in use include the following:

LIVERPOOL EDUCATION COMMITTEE.

EDUCATION (CHOICE OF EMPLOYMENT) ACT, 1910.

Record of child's attendance at school:

Name of pupil.....
Address.....
Date of birth.....
Name of school.....
Date of entering school last attended.....
Date of leaving present school.....
Age on leaving.....years.....months.

(Signed) .....,
Head teacher.

Date.....

Particulars to be filled up if the child has been transferred to a secondary trades school, etc.:

Name and place of school.....
Type of school.....
Entered school on.....
Left school on.....
Class or form on leaving.....

(Signed) .....,
Head Teacher.

Date.....

To be filled up by head teacher of evening continuation or technical classes:

Session.	Name of school.	Course.	Year of course.	Attendances.		Examination results.	Merit of work.	Signature of teacher.
				Actual.	Possible.			

Record of Employment.

To be entered by holder, with names of employers, nature of employment, dates of beginning and ending employment:

.....
.....
.....

Changes of address since leaving school, to be entered by holder:

.....
.....

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LIVERPOOL EDUCATION COMMITTEE.

EMPLOYMENT RECORD.

Employment of scholars leaving school.

Name of pupil.....Address.....
Date of birth.....When leaving school.....
Standard or class.....
Character and conduct [1].....Physique [1].....Hearing [1].....
Sight [1].....Regularity [1].....Punctuality [1].....
Occupation of father, mother, or guardian [2].....
Occupation obtained by parent or guardian for child.....
Evening school which pupil will attend.....
Brief report of head teacher as to capacity and suitability of scholar for the occupation selected and opinion of the head teacher as to the kind of employment, if any, at which he would be likely to succeed.

.....
.....
.....
.....

(Signed).....Head Teacher.
..... School .....Dept.

LIVERPOOL EDUCATION COMMITTEE.

EMPLOYMENT NOMINATION.

Employment of scholars leaving school.

Name of pupil.....Address.....
Date of birth.....When leaving school.....
Standard or class.....
Character and conduct [1].....Physique [1].....Hearing [1].....
Sight [1].....Regularity [1].....Punctuality [1].....
Occupation of father, mother, or guardian [2].....
Occupation preferred by parent or guardian for child.....
Evening school which pupil will attend.....
Brief report of the head teacher as to the capacity and suitability of scholar for occupation mentioned, and suggestion as to any other kind of occupation or employment for which he may seem more suited.

.....
.....
.....
.....

(Signed).....Head Teacher.
..... School .....Dept.

[1] E, excellent. V G, very good. G, good. F, fair.
[2] Strike out whichever does not apply.

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LIVERPOOL EDUCATION COMMITTEE,
14 Sir Thomas Street, ... 1913.

JUVENILE EMPLOYMENT REGISTRY.

I have to inform you that vacancies have / a vacancy has arisen for.....
Please, therefore, attend at this office on.....
next, the.....instant, at..... Be sure to bring with you a testimonial from your head teacher.

JAMES G. LEGGE,
Director of Education.

NOTE. If, however, you have now obtained a situation, please send me word as to the nature of the work and the name of your employer.

BRING THIS CARD WITH YOU.

CITY OF LIVERPOOL EDUCATION COMMITTEE,
14 Sir Thomas Street, ... 191–.

JUVENILE EMPLOYMENT REGISTRY.

MEMO.:
Please note that.....
lately a scholar at your school, has to-day been found employment by the above registry as
.....

JAMES G. LEGGE,
Director of Education.

LIVERPOOL EDUCATION COMMITTEE.

JUVENILE EMPLOYMENT REGISTRY.

To ..... 14 SIR THOMAS STREET,
....., 191–.

Re.....
In reply to your request for.....
I send you with this card.....
who should present it in a sealed envelope, addressed to you. If you decide to engage him / her please sign this card at the foot and return it to me as soon as possible. If you do not engage bearer, please hand this card back to him / her *unsigned.*

JAMES G. LEGGE,
Director of Education.

ENGAGED. (*Signed*).....

LIVERPOOL EDUCATION COMMITTEE.

Juvenile Employment Registry, 14, Sir Thomas Street.

Name..... Address.....
No. .....
This is to inform you that I have now obtained a situation as..... .....
with the firm of.....
.....
Address.....
(Signed).....
Date.....
To the DIRECTOR OF EDUCATION,
Liverpool.

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[Color of card, lavender.]

Nomination Form to be used where employment has not been found.[1]

LIVERPOOL EDUCATION COMMITTEE.

EMPLOYMENT OF SCHOLARS LEAVING SCHOOL.

Name of pupil.....Address.....
Date of birth.....When leaving school.....
Standard or class.....Character and conduct [2].....
Physique [2].....Hearing [2].....Sight [1] .....Regularity [2].....Punctuality [2].....
Occupation of father, mother, or guardian [3].....
Occupation preferred by parent or guardian for child.....
Evening school which pupil will attend.....
Brief report of head teacher as to capacity and suitability of scholar for the occupation selected and opinion of the head teacher as to the kind of employment, if any, at which he would be likely to succeed.

.....
.....

(Signed).....Head Teacher
.....School.....Dept.
Date.....

Remarks (to be filled up at the education office).

.....
.....
.....

[Color of card, pink.]

LIVERPOOL EDUCATION COMMITTEE.

JUVENILE EMPLOYMENT REGISTRY—PARTICULARS OF VACANCY NOTIFIED BY EMPLOYER.

Name of employer.....
Address.....Tel. No. .....
Trade or profession.....
Nature of vacancy.....
Other information.....

(Details as to wages, hours of duty, apprenticeship, etc., should be obtained, if possible.)

.....
.....
.....
Date.....

[1] A similar card of a different color is used if employment has been arranged.
[2] E. Excellent. V. G. Very good. G. good. F. fair.
[3] Strike out whichever does not apply.

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[Color of card, light green.]

Trade No. .....

.....*School board*..... .....*School* .....

Name .....Address ..... Renewals.

Date of birth.....([1]....years....months); Date when free to start work.....

Standard of education attained: .....

Normal for age, *i. e.*, at merit certificate stage. } Delete words not applicable. .....

Normal for age 12, *i. e.*, at qualifying stage. } Add here any specialty } ....

Below qualifying stage. .....

.....

Date of leaving school.....[2] Attendance.....[2] Punctuality.....

[2] Behavior.....[2] Sight.....[3].....[2] Hearing.....[3] .....

Physique—(*a*) Height....ft.....ins.; (*b*) Weight....stones....lbs. (as at the last statutory medical examination). .....

(1) Attending or (2) Going to attend continuation school. Name of continuation. .....

(1)..... (2).....School .....

Subjects of course of study.....

Occupation desired (parent to be consulted by pupil).....

Teacher's opinion as to nature of occupation pupil is fitted for by natural bent and educational equipment.....

(N. B.—A specific reply will facilitate administration).....

.....

Willing to be apprenticed?.....

Does pupil desire the assistance of the labor exchange?.....(If reply is in affirmative, pupil is to be directed to labor exchange nearest residence). .....

Teacher's further remarks (confidential) .....

Labor exchange official's confidential remarks.....

.....

JUVENILE EMPLOYMENT.

.....

GIRLS. .....

[1] A similar card of a different color is used for boys. .....

Employers between period of leaving school and registering at the Labor Exchange.	Nature of employment.	Wage.	Duration of period.	Date of leaving.	Remarks.

Employers to whom sent.	Nature of vacancy.	Classification Number.	Date when sent.	Placed		Remarks.
				T.	O.	

[1] For convenience, please state pupil's present age.

[2] Use Ex., V. G., G., and F.

[3] If any defect, state nature thereof.

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IV. LONDON.

With nearly 70,000 children leaving the elementary schools each year, the problem in London is sufficiently appalling. Volunteer service has developed here to an extraordinary degree. The London County Council with its energetic education committee and system of care committees; the Board of Trade with its strong central juvenile advisory committee and 18 local advisory committees; the apprenticeship and skilled employment committees; befriending committees; and other agencies in bewildering variety—all these make the work in London deserving indeed of a separate monograph. The magnitude of London's problem, and the impossibility of dealing with it in the way smaller communities attack their vocational aid problems has made the London scheme sui generis. To understand the workings of the placement machinery in London, it will be necessary to consider first the organization of the London juvenile advisory committee. This is appointed by the Board of Trade to cooperate with the juvenile labor exchanges in the area known as the administrative county of London. It consists of:

1. Six persons nominated by the London County Council.
2. Six persons possessing special knowledge of children and juvenile employment.
3. Three employers.
4. Three workpeople.

It is the duty of this committee to advise the Board of Trade from time to time in regard to all matters relating to the management of the juvenile branches of the labor exchanges, and in particular to form committees in connection with each local labor exchange. In addition, it supervises and directs the work of such local committees.

This central committee appoints the local advisory committee whenever a juvenile labor exchange is started in London.

Thirty persons constitute the local advisory committee. Of these, 10 are nominated by the London County Council and 2 by the consultative committee of London head teachers, while there can not be less than 4 representatives of employers and 4 representatives of workpeople. The remainder is made up of persons specially interested in the welfare of young persons, and includes teachers and social workers.

The following are the functions of the local committee as prescribed by the Board of Trade:

1. To focus the existing scattered efforts of different organizations dealing with juvenile employment in the locality.

2. To organize a systematic procedure for obtaining, in cooperation with teachers and the care committees, knowledge of the character, qualifications, and home conditions of children about to leave school, and about to register at the labor exchange as applicants for employment.

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3. To form subcommittees or "rotas" to attend at the exchange for the purpose of interviewing applicants and their parents in order to—
   a) Give advice with regard to employment in general and with regard to particular vacancies.
   b) To endeavor to secure the attendance of boys and girls at evening continuation or technical classes.
4. To secure in cooperation with the labor exchange authorities that—
   a) Employers are informed as to the work of the local committees.
   b) Adequate information is obtained as to the conditions and prospects of particular trades and situations.
   c) The records of all information relative to children, employers, and employment are so kept as to be readily available for the purpose of the committee.
5. In cooperation with care committees, boys' and girls' clubs, and institutions for the welfare of juveniles, to organize a system for keeping in touch with such boys and girls when placed as may be thought to need supervision.
6. To report periodically and make suggestions to the London juvenile advisory committee and to carry out such instructions as may from time to time be issued by them.

A local committee may recommend to the London juvenile advisory committee the names of persons as new members of the local committee provided the number (30) is not exceeded. It is also within the power of a local committee to recommend to the London advisory committee the names of persons to serve on rotas, as approved workers, without being members of the local committee. Local advisory committees are concerned with juveniles under the age of 17.

The work of these local committees presents four phases:

1. THE SCHOOL-LEAVING FORM.

Shortly before a child leaves the elementary school a form, termed the "school-leaving form," is filled. This is done in part by the head master of the school and in part by a member of the school care committee. The members of the care committee endeavor to visit the home and see the parents as well as the child.

The form, if properly filled, supplies the information an advisory committee requires to carry out effectively its work of advising juveniles as to employment.

It is important to know whether the child has shown special ability in any direction and in what part of the school curriculum he has succeeded best. His composition or arithmetic papers may be above the average; this would suggest for him a possibility of success in an office; or he may be unusually clever with his hands—the report of the manual training instructor in the case of a boy, or in the case of a girl, her needlework, or the report of the domestic science teacher, should show whether this is the case; here some skilled trade would be indicated as a suitable opening. If the school is a "central school,"[1] the bias of the school curriculum and the special course of instruction the child has taken are mentioned. Such information,

[1] The latter corresponds to what is coming to be called in the United States a prevocational school.

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when carefully obtained, indicates in a general way the kind of employment for which the child is probably best suited.

Secondly, there is a record of the child's health as it appears in the medical register. It is highly important that all defects should be noted, and at this point more care on the part of physicians is obviously necessary. Arrangements are now made for the school doctor to reexamine, shortly before they leave school, all children among whom defects have been found at a previous inspection. If, in addition, the care committee are doubtful about the health of any child they may call for a special examination by the school doctor. A large number of young people constantly enter employment for which they are physically unfit, and they soon break down. The advisory committee must be supplied with information sufficiently intelligent and detailed to prevent this happening in the case of boys and girls who use the exchange.

Thirdly, there is the report on the home circumstances of the child. An advisory committee can do their work well only as they are acquainted with the home conditions; these directly affect the choice of employment. When, for example, the need is great, the child must earn at once and take work which pays the most. Low earnings with prospects of learning a trade are out of the question in such a case, and, in the absence of subventions for needy children it is useless for an advisory committee to suggest such trade. On the other hand, when such poverty is not present the advisory committee can urge the parents to sacrifice immediate earnings for the sake of better prospects.

There is a space in the school leaving form for recommendations as to employment. In making these recommendations the care committees are not required to specify the precise occupation for which the boy or girl is best fitted. This is left to the labor exchange, where the various openings and prospects are presumably better known.

In the majority of London County Council elementary schools the school leaving form is filled for each child leaving school, and all forms are sent to the local labor exchange. It is necessary for the exchange to receive all forms because a large number of children who have not expressed an intention of registering eventually find their way to the exchange. These forms are sent marked either "for filing" or "for action." The former refers to children who will probably not apply to the exchange; the latter to such children as are advised to apply. In certain cases the care committee seem to have unfortunately confined their recommendations of the exchange to those children who, because of poor homes or physical or mental handicaps, would not, unaided, find employment. As a result, from lack of fit applicants, the exchanges often find themselves unable to fill good vacancies, especially those in business houses.

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2. THE WORK OF "PLACING."

The second part of the work, with which the advisory committee is concerned, relates to the placing of juveniles who register at the exchange. This work is carried on under the direct supervision of the committee. The children are divided into two classes—juveniles fresh from school with school leaving forms, and other juveniles without school leaving forms. Eventually when all schools send forms to the exchange, all juveniles from school will have school leaving forms. But at present in certain districts all schools have not yet been affiliated with the exchange. There will, however, always remain a large number of young people who register at the exchange some time after leaving school. The work of the committee is concerned with both classes of juveniles, though special and more detailed attention is devoted to those coming direct from school.

3. SCHOOL-LEAVING-FORM CHILDREN.

As already explained, the school leaving forms sent to the exchange are marked either "for action" or "for filing." In the case of the latter the forms are filed at the exchange for use in the event of registration at some later date. In the case of the former the children and their parents are invited to attend at the exchange.

The advisory committee endeavor to interview all the juveniles who are so summoned. For this purpose the committee divides itself up into small subcommittees or "rotas," consisting of persons who agree to attend at the exchange at certain times for interviews. It has already been stated that the committee may, with the consent of the London advisory committee, invite persons who are not members of the main committee to serve on a "rota." It sometimes happens that a head teacher, who is not a member of the advisory committee, is willing to be present at a "rota" to which pupils from his school have been summoned.

The "rota" interviews the young people and parents who respond to the summons. The school leaving forms are before it and a list of vacancies sent by the local secretary or through the clearing house.

The decision of the "rota" takes various forms, according to the special circumstances of the case:

1. In the case of a boy or girl who has left school it may be found possible from the list of existing vacancies to suggest an opening. In this case the young applicant is given the green card to take to the employer. There may, however, be no suitable vacancy. In these circumstances he is registered and told to call at the exchange again. It is the duty of the secretary to endeavor to find a position. This is done either by getting into touch with the local employers, by notifying the need to a neighboring exchange, or by sending the child's card to the clearing house for special canvassing.

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The home circumstances may, however, be such that the parents are unable to wait while search is made for a desirable occupation. The "rota" then places the juvenile temporarily while awaiting a more satisfactory opening.

2. In the case of boys and girls still at school, the procedure is much the same except that the child can not be placed until free to leave school. Children requiring special employments are encouraged to remain at school until such an opening has been found. In other cases they are asked to call at the exchange as soon as they leave, when the decision of the "rota" will, so far as possible, be carried out by the exchange. In certain cases the "rota" has to advise the juvenile to continue at school for a longer period.
3. The "rota" at times decides to refer the juvenile to some other agency dealing with special forms of employment, as for example, the apprenticeship and skilled employment committee or the metropolitan association for befriending young servants.

The care committee of the school from which the juvenile comes is informed of any definite decision of the "rota." It has happened that children have given care committees inaccurate accounts of the advice given them at "rotas," and very often the child, when summoned, does not attend. In order that the care committee may have full knowledge of the proceedings at the exchange it has been decided that—

When a school leaving form has been sent to the exchange marked "for action"—

(*a*) If the child does not attend when summoned the secretary shall inform the care committee.

(*b*) If the child attends and is advised and not placed, the secretary shall send to the care committee Form "A," indicating thereon the nature of the advice given.

(*c*) If the child attends and is placed, the secretary shall send to the care committee Form "A" in the usual way.

In addition to interviewing juveniles fresh from school, the "rota" endeavors to interview those juveniles, who, coming with school-leaving forms have previously been placed by the exchange, but who, for one reason or another, have lost their employment. Rota meetings are also open to all children or others who come for any special advice or help.

There are in London various associations concerned with the problem of finding employment for certain classes of juveniles. Cooperation between the advisory committees and the apprenticeship and skilled employment committees is very close in certain districts, and is based upon the following rules drawn up between the two bodies:

Rule I.—Except in cases where a parent or employer objects, the entire work of indenturing apprentices, with or without premium, shall be dealt with by the apprenticeship and skilled employment committee, and not by the local advisory committee.

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Rule II.—Boys and girls suited to apprenticeship, for whom there are no suitable vacancies at the exchange, may be referred to the apprenticeship and skilled employment committee.

Rule III.—The apprenticeship and skilled employment committee shall notify to the local advisory committee the names of all their juvenile applicants in respect of whom school-leaving forms have been issued.

Rule IV.—When the labor exchange has a vacancy for an indentured apprentice and the employer does not object, the vacancy shall be referred to the apprenticeship and skilled employment committee and dealt with by them.

Rule V.—When the apprenticeship and skilled employment committee have a suitable vacancy which they are unable to fill they shall apply to the local advisory committee for a suitable boy or girl, and vice versa.

Rule VI.—Apprenticeship and skilled employment committees may canvass employers, but only after consultation with the secretary of the local advisory committee in whose district the firm to be canvassed is situated.

Rule VII.—As far as possible, all information about juveniles and vacancies possessed by one party to this arrangement shall be at the disposal of the other.

Rule VIII.—Physically handicapped children who are not eligible for the help of the "after-care committee for children from the physically defective schools" shall be referred by the local advisory committee to the apprenticeship and skilled employment committee, if the latter be willing to receive them.

In July, 1913, these rules were reconsidered. The London juvenile advisory committee have agreed that the rules should be regarded more by way of suggestions than as rigid rules. The wording of rule 4 has been slightly altered, otherwise the scheme remains much as it was. An arrangement has been made whereby the local advisory committee is notified by the apprenticeship committee of the result of each case referred to it, so that the child so referred does not slip between the two agencies.

Metropolitan association for befriending young servants.—Girls applying to advisory committees, who desire to enter indoor domestic service are, in most cases, referred to the local branch of the metropolitan association for befriending young servants. (A new arrangement is now under consideration between the London juvenile advisory committee and the metropolitan association for befriending young servants whereby girls suitable for domestic service may be more effectively dealt with than heretofore.)

Friends of the poor.—This society has agreed to cooperate with the local advisory committees on the following terms:

(1) They will inquire at the exchanges to ascertain whether any juvenile with whom they are dealing is known.

(2) The committee may refer to them certain difficult cases of poverty.

(3) When they can not supply juveniles required by the firms with whom they are in touch, they will inquire at the exchange to see if there are suitable juveniles available.

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Boys' country work society.—This society places boys on farms (*a*) with a view of their settling in the country permanently; (*b*) with a view to emigration when sufficiently trained and of the right age.

Arrangements have been made whereby vacancies notified by the boys' country work society are circulated to local advisory committees. The society's form is filled up at the exchange in respect of suitable applicants, who are interviewed by the representatives of the society. In special cases of need the society arranges to assist in providing the necessary fare. They also undertake to keep in touch with the boys thus placed.

Marine society.—The arrangement made for boys wishing to go to sea provide that the marine society will accept eligible candidates free of all cost to the parents or guardians; clothe, maintain, and train them entirely at their own expense. On the completion of a boy's training the society will find him occupation either in the Royal Navy or the mercantile marine.

Mentally and physically defective children are dealt with through appropriate special school care committees and after-care committees. In addition to these special arrangements the local advisory committees work in close touch with local scout masters, boys' and girls' clubs, etc., endeavoring to assist in placing their members in suitable occupations.

SPECIAL INQUIRIES.

In order to assist the work of committees, the Board of Trade have agreed to carry out inquiries into the conditions and prospects existing in certain trades. The results of such inquiries are printed and supplied to members of advisory committees. Reports are now published on the conditions of employment in—(1) Ready-made women's clothing trades, (2) bookbinding and stationery trades (girls), (3) steam laundries, (4) leather-working industries, (5) building trades.

The Board of Trade will soon issue shorter reports in pamphlet form dealing with various trades. These are in course of preparation and are intended for the guidance of members of advisory committees.

4. THE CLEARING HOUSE.

To complete the organization of the work of placing, something after the nature of the clearing house is essential. None of the areas of the local labor exchanges constitutes an industrial unit. There are districts where children are numerous and the vacancies relatively few; and there are districts where conditions of an opposite character exist; further, it is often the case that the districts which possess the largest number of qualified children are the districts which afford the least satisfactory openings.

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A clearing-house system, designed to meet this problem, has been attempted in connection with the labor exchange in what is known as the City of London—the nonresidential, financial district of London. A special advisory committee has recently been formed at the city exchange to supervise and advise on the clearing-house system. This committee does not deal with the actual placing of juveniles—this being the work of the committees attached to the local exchanges—but its special duty is that of considering how vacancies can best be obtained and circulated to the local exchanges. The committee consists of persons, employers and employees alike, representing the large city trades and businesses, and in part of chairmen of local advisory committees. As at present partially organized, the arrangements at the clearing house are as follows:

The clearing house deals with vacancies coming from two sources.

The vacancies, from whatever sources obtained, are classified into three groups, lettered A, B, or C:

A. Vacancies of a very special character.

B. Vacancies offering good prospects of permanent employment.

C. Vacancies in general, of the errand-boy type.

These lists, as classified, are sent out early each morning to reach the local exchange in time for an evening rota meeting on the same day. In general, A and B vacancies are circulated to all exchanges and C vacancies to a single local exchange. In the case of C vacancies the juvenile is sent direct to the employer. When a juvenile for an A or B vacancy has been chosen he is, in general, sent to the city exchange and from there, if regarded as suitable, to the employer. If a juvenile so dispatched is not successful in his application he returns to the city exchange and is sent, where possible, to apply for another vacancy of the same type, i. e., a juvenile sent by the local exchange for an A vacancy is sent to another A vacancy and a B juvenile to a B vacancy. But a juvenile sent by a local committee for an A vacancy will not be sent to a B or C vacancy, or a B juvenile to a C vacancy, without first consulting and obtaining the consent of the local secretary.

It has also been arranged that local committees who have on their books juveniles requiring vacancies of a special character may forward particulars of the juvenile in question to the clearing house, when the canvassers there will, in the course of their duties, make special search for the kind of vacancy asked for.

There are (a) vacancies notified to the city exchange by employers and (b) vacancies which local exchanges have been unable to fill locally and have notified to the city exchange.

The work of canvassers attached to the clearing house is not confined to the administrative area of the city of London, but includes adjoining districts where extent of employment is large.

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THE POWERS OF THE COMMITTEE.

The Board of Trade have intrusted to local advisory committees certain important powers with regard to the "placing" of juveniles. There is reproduced below a memorandum on the subject which was recently circulated to local committees by the London committee.

The Board of Trade have agreed:

1. That, subject to any general regulations issued or to be issued from time to time by the Board of Trade or the juvenile advisory committee, the local advisory committees be empowered to decide whether juveniles shall or shall not be submitted to employers notifying vacancies, provided that where such decision—

(*a*) Takes the form of a resolution that juveniles shall not be sent under any circumstances to a particular employer, a record be kept of such cases, with the reason for such decision, and a quarterly return of such cases be made to the London juvenile advisory committee;

(*b*) Takes the form of a resolution that juveniles shall not be sent to certain types of employment, or shall be sent to employers only under certain conditions, such a resolution shall not be acted upon until it has received the approval of the juvenile advisory committee and the Board of Trade.

2. That, in the event of the manager disagreeing with the decision of a rota to send a particular juvenile to a particular place, the juvenile shall not be sent to that vacancy, and the action taken shall be reported to the main (local) committee.

It will be seen that when the committee decide not to send juveniles under any circumstances to a certain type of employment, as distinguished from one particular employer, the decision must take the form of a recommendation to the London juvenile advisory committee. It would obviously be of little use for a single exchange to decline to fill vacancies of a certain kind if other exchanges continued to fill them. Uniformity of action, therefore, is aimed at by the London committee.

The authorities are under no delusion as to the number of what may be termed really satisfactory openings for children. Returns of the occupations followed by boys on leaving school were obtained a few years ago by the London County Council. These returns showed that about half of the boys entered blind-alley employments, and, at most, a third found employment in any class of work which could be, in any manner regarded as skilled. Employers offering vacancies of the less satisfactory kind are able to do without any help from labor exchanges. For a long time they will continue to be able to do so, despite all labor exchanges. Many children must work as soon as possible; their poverty is real. Now the records show how limited is the number of good openings, amounting indeed in the cases of the boys to not more than about a third of the available positions. Obviously the remaining two-thirds of the boys in search of work are driven to unpromising and undesirable sorts of work.

This situation is bad, and it will not be remedied alone by the establishment of advisory committees. Nevertheless, there is a

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positive social gain in the existence of these committees. Vacancies of any kind will be filled, no matter what any committee may think; but they are now to an increasing extent filled with the knowledge of the labor exchange people.

The advisory committee is enabled to keep in touch with the boy; they may be able to find him more suitable employment at a later date; but they are, at any rate, in a position to trace his industrial career and ascertain exactly the effect his work has upon him. This is important.

There can never be a satisfactory solution of the problem of juvenile employment until detailed and conclusive information is available regarding the conditions of boy and girl labor.

It is hoped that the advisory committees, in their dealing with disadvantageous forms of employment, will be in a position to point out what further public action is necessary to remedy evils which may be discovered.

A very large percentage of children who apply to the exchange do not obtain employment through the exchange. Of the juveniles who register, little more than half are found employment. The remainder find work on their own account, and nothing more is known of their careers. To remedy this deficiency is perhaps the committee's most important duty.

Where the less satisfactory openings are offered, the conditions and the reasons why the openings are not satisfactory are explained to the juveniles, and if possible, to their parents. If they decide to apply for such vacancies, they do so at least with knowledge of the facts. Some rotas endeavor to supervise the career of the young worker placed in these unpromising employments. Instructive instances of such services are on record; but satisfaction with the present situation is out of the question.

As matters stand, there are a certain number of vacancies and a certain number of youthful applicants. The problem which the committee are called on to solve is how best to sort out the different applicants and assign them to the different vacancies. Apart from such advice as the committee are able to give, this sorting process depends largely on the unguided choice of the children, who know little of the prospects and the conditions existing in the various kinds of employment. The advisory committees are genuinely striving to replace this method of unguided choice of the juvenile by some knowledge of the prospects in the different trades and occupations. The secretary visits local employers and places of work in order to find out what the openings are. This canvassing is properly regarded as a check against the danger of turning the exchange into a channel through which unsupervised employers can obtain an indefinite supply of young workers. Mere statistics of placements do not

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necessarily indicate successful work; more committees would do well to remember this point.

SUPERVISION.

A most important feature of the local advisory committees' work is the attempt to organize a system under which accurate information may be obtained of the industrial career of each boy and girl placed. The committee endeavors to test the value of its work by reviewing the progress of the placed children. The point of view of the child, his parent, as well as the opinion of the employer, are ascertained. A boy may have been placed in employment for which he is physically or otherwise unfitted, or he may be given a situation with prospects of permanent employment. He may have taken up work in which he can hope to be successful only by taking certain special training courses. He is advised accordingly. Some employers require certain qualifications in the worker engaged. It is desirable that the committee should know such facts. Now all this kind of information, so essential to good work by an advisory committee, can be secured only through investigation.

An interesting method of ascertaining the industrial progress of the young workers has been adopted by some advisory committees:

Every juvenile, when he is placed, is invited to call at the exchange periodically and let the committee know how he is getting on. He comes in the evening when rotas are meeting. A notice of such meetings sometimes appears in the window of the exchange. It is found that children make considerable use of this opportunity of consulting the secretary or committee.

Some local advisory committees have established cooperation between themselves and the local certifying factory surgeons, who, in certain cases, have undertaken to notify the advisory committee of the names of rejected children, with a recommendation as to the type of employment for which they are best suited. The advisory committees endeavor to place the juveniles in accordance with the physician's disclosures.

This, then, in broad outline, is the work of the London advisory committee and its local committees. There is an earnest endeavor, first, to know the children, their needs and capabilities; secondly, to place them as advantageously as conditions will allow; and thirdly, to study results of this placement through the system of after-care which is being developed. The facts which will be forthcoming after a few years' trial of this great enterprise will be invaluable for their illumination of industrial conditions as reflected in the careers of the children studied, and of special service in the formulation of future educational and social policies.

The London schools are being brought into close working relation with the exchanges. Many teachers are breaking away from the

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traditional silence and routine of the English teaching body, and are making personal studies on their own account of the children who leave prematurely for wage earning.

As yet the United Kingdom is not ready for the German system of compulsory day-time instruction for young workers. Attention is therefore centered on existing shortcomings in the evening school system. These defects are glaring, though not at all peculiar to England. Dwindling classes, indifferent and disheartened students, the natural handicap of artificial lighting, and weariness of both students and teachers, after the day's toil, are familiar criticisms. The situation in Great Britain, as with us, is an indictment of the principle of voluntary and of evening attendance by children between 14 and 18 years of age. The Munich boy between 14 and 17 years of age, employed throughout the year though he may be, is compelled to attend for 240 daylight hours per session during each of the three years. In London the number of student hours per enrollment per evening session amounts to something like 45.

It is interesting to note that the education committee of the London County Council has begun the task of considering a reorganization of the evening schools in order to meet better than they now do the neglected needs of an army of young wage earners. The changes now in process in the council's evening schools are designed to aid along the lines of the occupations of the students. Advisory committees are proposed for these evening schools, to consist of employers, social workers, and those connected with the advisory committee of the labor exchanges. A large number of vocational institutes, so called, are projected, with special classes for post-office messengers and other groups of young employees.

In order to get a clearer idea of the organization and work of the advisory committee, two documents, one outlining the general rules of procedure for an advisory committee, and the other reproducing the monthly report of one of the best of the local advisory committees follow:

DRAFT RULES OF PROCEDURE FOR AN ADVISORY COMMITTEE FOR JUVENILE EMPLOYMENT.

1. *Times of meeting.*—The committee shall meet, as required by the Board of Trade, and at such other times as the committee may decide.

2. *Notice of meeting.*—The agenda for each meeting shall be posted to each member not less than 48 hours before the time of meeting.

3. *Circulation of minutes.*—The minutes of the proceedings of each meeting shall be kept by the secretary to the committee, and shall be circulated to the members, with the agenda for the subsequent meeting.

4. *Subcommittees.*—The committee may delegate any of their functions to a subcommittee appointed by themselves from their own number, which shall report to the committee. Unless the committee otherwise decide, the chairman shall, ex officio, be chairman of a subcommittee.

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5. *Chairman.*—At every meeting of the committee or a subcommittee the chairman, or in his absence such other member as is chosen by the members then present, shall preside.

6. *Quorum.*—The quorum of the committee shall be one-third of the number of committee members. A subcommittee shall fix their own quorum.

7. *Voting.*—A question shall be decided by a majority of the votes of the members present voting on that question, and in case of equality of votes the person presiding at the meeting shall have a second and casting vote.

8. *Resignation of membership.*—The chairman or any member of the committee may resign his office by giving notice in writing to the Board of Trade.

9. *Absence from meeting.*—Any member who fails to attend at least one-quarter of the total number of meetings to which he is summoned in any consecutive 12 months, except for some cause approved by the committee, shall be deemed to have vacated his seat, but shall be eligible for reappointment.

MONTHLY REPORT OF A LOCAL ADVISORY COMMITTEE.

Camberwell Juvenile Advisory Committee.

Report for period March 15 to April, 1913, inclusive. Number of schools selected, 54.

	Boys.	Girls.
A. Number of school-leaving forms received—		
For action	149	140
For filing	49	62
B. Children who applied in answer to the summons	50	64
C. Children placed in conjunction with other agencies	3	...
D. S. L. F. children placed by exchange:		
(a) With prospects of learning a trade	30	46
(b) With prospects of permanent work	34	19
(c) Purely unskilled	...	...
E. Other children placed by exchange:		
(a) With prospects of learning a trade	38	51
(b) With prospects of permanent work	106	21
(c) Purely unskilled	17	1
F. Number of "A" forms issued	64	65
G. Number of "B" reports received	34	30

Appendix March–April, 1913.

Employers' reports issued	97	34
Employers' reports received	74	25
Fresh registrations	247	169
Reregistrations	45	38
Reregistrations after placement	44	12
Live register brought forward	78	46
Live register carried forward	87	56
Total dealt with	327	209
Total placed	225	138
Percentage	69	66

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The forms mentioned in the foregoing description of the London work follow, together with an interesting health memorandum from the London County Council's medical officer:

Form No. C. C.

LONDON COUNTY COUNCIL.

EDUCATION OFFICER'S DEPARTMENT.

SCHOOL LEAVING FORM—HEAD TEACHER'S REPORT.

.....School. .....Electoral division.

1. Name.....
2. Date of 14th birthday..... 3. Standard.....
4. Address.....
5. Entered school.....
6. Probable date of leaving school.....
7. General ability and conduct.....
.....
8. Ability [1].....
9. Height..... 10. [2] Health (eyes, ears, heart, lungs).....

Date of last inspection.....

11. a) Sort of employment recommended.....
b) Whether further retention at school is recommended.....
c) What evening class or trade school is recommended.....
(Signed)..... (Date).....
Head teacher.

SCHOOL CARE COMMITTEE'S REPORT.

1. Home circumstances and father's occupation.....
2. Parent's wishes as to employment.....
Scholar's inclinations.....
4. Name and address of suitable individual or institution (if any) to keep in touch with child.....
5. Name of exchange to which this form or copy is sent.....
School care committee's recommendation:
(Signed)..... (Date).....
Honorary Secretary, Children's Care (School) Committee.
6. Child's first employment on leaving school.....

Form A.

LONDON JUVENILE ADVISORY COMMITTEE.

Report to.....children's care (school) committee of ... taken by the local advisory committee to be forwarded to person or institution ... care the child has been referred.

.....Labor exchange.

Address.....
Date.....

Boy ..... Age..... School.....
Address.....
Nature of work found for applicant.....
Whether permanent or temporary.....
Hours and wages.....

[1] Including special ability and reports from instructors in manual training and domestic economy.
[2] To be taken from medical officer's last report.

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Name and address of firm.....
.....
Evening class, technical institute or trade school recommended.....
Remarks.....
.....
.....

The local advisory committee will be glad if the children's care (school) committee will report to them as to the above in about a month, and subsequently in the months of May and November, or earlier if occasion demands.

A form for the first report is inclosed.

N. B.—If.....falls out of work the visitor should immediately notify the local advisory committee and persuade (him or her) at once to re-register.

To.....
.....
.....

Form B.

LONDON JUVENILE ADVISORY COMMITTEE.

Report of.....to whose care the child has been referred by the.....children's care (school) committee.
.....Electoral division.
.....Labor exchange.
Address.....
Date of issue.....

Report as to—
Name..... Age.....
Address.....
Nature of work.....
Employer.....

1. Evening class, technical institute, or trade school attended.....
.....
2. Clubs (thrift, social or other) joined by him (or her).....
.....
3. Information obtained from the home as to industrial progress and prospects.....
.....
4. Remarks.....
.....
.....

Signature.....
Date.....

N. B.—In no instance is the visitor to approach the employer without the sanction of the local advisory committee.

Any change in wages or hours of work should be noted.

This form to be returned to....., secretary of the children's care (school) committee, by whom it will be forwarded to the ..... Labor Exchange.

.....

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Memorandum of the Medical Officer of the London County Council on Health in relation to choice of occupation.

(a) It is obviously impossible within the limits of a short memorandum to cover all the points which may arise in regard to the physical fitness of children for employment. The following paragraphs, therefore, are to be looked upon as intended merely to form a general guide to children's care (school) committees. In cases where doubt exists with regard to fitness of a child for a particular employment the committee are reminded that machinery exists whereby the opinion of the school doctor may be obtained. Application should in such cases be made to the divisional medical officer.

It is to be pointed out that under the provision of the Factory and Workshops Act no young person under 16 years may be employed in a factory or in a workshop in which certificates of fitness are obligatory, unless within seven days after commencing work a certificate has been granted on personal examination by the surgeon that the applicant is not incapacitated by disease or bodily infirmity for working daily for the time allowed by law.

The certificate may be qualified by conditions as to the work on which a child or young person is fit to be employed.

At the request of the advisory committee on juvenile employment (in connection with the labor exchange) in certain towns the certifying surgeon has (with the approval of the factory department) undertaken to supply confidentially information as to young persons and children rejected on medical grounds for certificates of fitness, in order that the committee may endeavor to secure suitable employment for such persons and advise parents (where necessary) to obtain medical treatment.

(b) Some trades require the possession of an adequate physique, and it should be borne in mind that occupations which demand muscular effort also place a considerable strain upon the heart. A weakly child or one who is reported to have a weak heart would not, of course, be recommended to become, for instance, a blacksmith.

(c) The workers in many trades are particularly liable to suffer from respiratory complaints. The death rate from consumption in these trades is unduly high. They comprise, in the first place, those trades which are especially dusty, and, in the second place, those which involve spending much time indoors in ill-ventilated workshops or offices. Children who are reported to have weak chests or who have a bad phthisical family history should be discouraged from entering them. A list of such trades, compiled from the reports of the registrar general, is to be found in the statement given later.

(d) Rheumatic fever is often associated with heart disease. Children who have suffered from an attack of rheumatism should avoid occupations necessitating exposure to cold, damp or extremes of temperature.

(e) Defective eyesight is likely to lead to inefficiency and over strain in employments in which close work and attention to minute details are demanded. Many of these employments are followed by women.

A low degree of myopia (short sightedness) properly corrected by glasses, will not necessarily render a young person unfit for close work; but a high degree of myopia should be an absolute bar on account of the tendency to progressive deterioration of the vision in these cases. Hypermetropia (long sightedness) and astigmatism are likely to cause much strain and headache, and children suffering from these defects should not enter these occupations.

Ladies' tailoring and waistcoat making for the most part has to be done on dark material, the work must be very fine, and the stitchery invisible.

Ladies' tailoring requires physical strength to manipulate the heavy goose irons in pressing. Coat and waistcoat makers work on their knee instead of a table. Crooked backs, weak hearts, and lack of vitality do not suit these trades.

Upholstery is not so trying or close as tailoring, but is more dusty.

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Dressmaking, millinery, and embroidery require good eyesight. There is little physical strain involved in millinery.

Corset making.—Good eyesight is necessary.

Photography requires very good eyesight; long sight and astigmatism should disqualify.

Laundry.—Girls have to work in high temperature; weak chests and rheumatism should disqualify; the wearing of spectacles is a drawback.

(*f*) In certain occupations the danger of accident is greater than usual. The danger is greatly increased by defects of eyesight or hearing, and in cases where there is a tendency to epilepsy. Such children should avoid situations which involve passing in proximity to machinery and also those which involve frequent excursions in the midst of street traffic, climbing ladders, etc. The danger to girls working in many factories of wearing the hair loose, or clothing with flying strings or ribbons, is manifest and may need to be guarded against.

(*g*) In some trades great danger exists from the necessity of handling poisonous materials. Many processes in these trades are strictly prohibited by the Factory and Workshops Act as unsuitable for children under 16; these processes occur in finishing of tiles, white-lead works, various chemical works, etc.

Other occupations involving similar dangers are those of plumber, painter, glazier, lead worker, file maker. Immunity to some extent depends upon habits of strict personal cleanliness. Care committees are in a position to aid in preventing danger from these sources by impressing upon the child entering one of these occupations the importance of never eating with unwashed hands and of never holding tools or nails in the mouth.

The habit of nail biting is of some importance in this connection, and it is of importance to see that the teeth are absolutely free from decay.

(*h*) Many of the foregoing points will be illustrated by a consideration of the following table taken from the registrar general's returns showing the various divisions of the building trades in relation to mortality:

	All causes.	Alcoholism and diseases of liver.	Phthisis.	Diseases of circulatory system.	Diseases of respiratory system.	Bright's disease.
Occupied and retired males	100	100	100	100	100	100
Building trades	93	81	102	92	92	111
Bricklayer, mason	90	79	104	88	103	83
Carpenter, joiner	82	77	80	82	71	94
Slater, tiler	111	91	107	97	112	126
Plasterer, whitewasher, paperhanger	101	114	114	97	116	83
Plumber, painter, glazier	111	79	114	108	95	211
Cabinetmaker	95	93	122	90	94	100
Sawyer	77	72	65	90	82	66

The figures given in this table are termed "comparative mortality figures"; 100 is taken as the normal rate of death from the various causes amongst the whole of the male population at working ages. In trades where the figure is less than 100 the risk of death from the cause at the head of the table is less than the average, and where the figure is greater than 100 the risk is greater.

Thus it will be seen that the building trade as a whole is a healthy one, that carpenters and joiners are especially healthy, and so are masons and bricklayers except for a slight increase in mortality from phthisis and diseases of the respiratory system; that plasterers suffer more than the others from alcoholism, cabinetmakers from phthisis, and plumbers, painters, and glaziers from diseases of the circulatory system and Bright's disease, no doubt connected with lead poisoning.

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STATEMENT.

(1) Occupations in which mortality from respiratory disease is higher than the average (taken from the registrar general's reports). The occupations with highest mortality are placed first and those with exceptionally high mortality are distinguished by italics:

(a) Dusty occupations—*Cutler, scissors maker, earthenware, file maker, brush, broom maker, hair, bristle worker, chimney sweep, glass manufacturer, furrier, skinner, copper worker, wood turner, nail, etc., manufacturer, brass, bronze worker*, gunsmith, coal heaver, lead zinc worker, gutta-percha worker, cotton manufacturer, chemical manufacturer, stone quarrier, cycle and motor manufacturer, rope, cord maker, bricklayer, mason, carpet, felt manufacturer, gasworks service, miller, baker.

(b) Occupations necessitating confinement and lack of fresh air—*General shopkeeper*, tailor, bookbinder, printer, hairdresser, tobacconist, shoemaker, textile worker, tailor, cabinetmaker, lock, key maker, law clerk, lithographer, saddler, commercial clerk.

(c) Workshops to which the provisions of the factory acts with regard to certificates of fitness have been extended—File-cutting, carriage building, rope and twine making, brick and tile making, making of iron and steel cables, chains, anchors, grapnels and cast gear, making of nails, screws and rivets, baking bread, biscuits or confectionery, fruit preserving, making, altering, ornamenting, finishing, or repairing of wearing apparel by the aid of treadle sewing machines.

.....
School Medical Officer.

Form C.

LONDON JUVENILE ADVISORY COMMITTEE.

To be sent to the secretary..... advisory committee, labor exchange,

Date .....

Please find suitable employment for the boy / girl whose particulars are given below.

1. Name ..... 2. Age .....Years.....Months.
(surname first.)

3. Address.....

4. School..... 5. Date of leaving.....

Standard .....

Details of employment. (Give last employment first.)

Year.	Trade.	Employed as—	Time with.	Left.	Hours.	Wage.	Reasons for leaving.

Employment desired.....

Evening trade or technical schools attended.....

Subjects taken.....

Home circumstances, and father's (or guardian's) occupation.....

.....

.....

.....

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11. General remarks on the conduct, qualifications and general ability of boy / girl .....

.....

.....

12. Special qualifications.....

.....

.....

13. Name and address of suitable individual or institution (if any) to keep in touch with boy / girl .....

Signature of person recommending.....

Address.....

Form AA.

LONDON JUVENILE ADVISORY COMMITTEE.

..... Labor Exchange.

Address.....

Date.....

Name..... Age..... School.....

Address.....

Nature of work found for applicant.....

Whether permanent or temporary.....

Hours and wages.....

Name and address of firm.....

Evening class, technical institute, or trade school recommended.....

Remarks.....

The local advisory committee will be glad if..... will report to them as to the above in about a month, and subsequently every six months, or earlier if occasion demands.

A form for the first report is inclosed.

N. B.—If the boy (or girl) falls out of work, the visitor should immediately notify the local advisory committee, and persuade him or her at once to reregister.

.....*Secretary.*

.....*Local Advisory Committee.*

To.....

.....

.....

Form BB.

LONDON JUVENILE ADVISORY COMMITTEE.

.....Labor Exchange.

Address.....

Date of issue.....

Report as to—

Name..... Age.....

Address.....

Nature of work.....

Employer.....

1. Evening class, technical institute, or trade school attended.....

2. Clubs (thrift, social or other) joined by him (or her).....

3. Information obtained from the home as to industrial progress and prospects.....

.....

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4. Remarks.....

Signature.....

Date.....

N. B.—In no instance is the visitor to approach the employer without the sanction of the local advisory committee.

Any change in wages or hours of work should be noted.

This form to be returned to.....*Secretary of the Advisory Committee*

.....*Labor Exchange.*

As a matter of interest there is added a specimen set of forms used in some districts in connection with aftercare work:

AFTERCARE.[1]

[Private and confidential; to be retained by the visitor.]

Name.....Age.....Address.....

School.....Employment (Give date).....

Firm.....

Hours, wages, etc.....

Further education.....

Remarks.....

.....*Secretary.* .....*19* .

ADVISORY COMMITTEE FOR JUVENILE EMPLOYMENT.

.....

.....19 . .....

.....

SIR (or MADAM): I am desired by the advisory committee for juvenile employment to ask if you will be so good as to supply them from time to time with a brief report upon the boy or girl with regard to whom details are given in the accompanying form. Special slips are inclosed for this purpose.

The committee would in particular be glad to be informed upon the following points:

1. General welfare, including home circumstances.

2. Circumstances of employment, with note of any change.

3. Further education. The school attended, or any special reasons for nonattendance should be shown.

4. Any special needs which it may be within the power of the committee, either directly or indirectly, to meet.

If out of work, the boy or girl should be urged to re-register at the exchange, and information should be sent to me. In no case should the employer be approached without the committee's sanction.

I am yours, faithfully,

.....

Secretary.

[1] Space for "visitors' notes" on the back.

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V. BIRMINGHAM.

Nowhere in England will be found a more intelligently executed plan of helping children start in life than in the city of Birmingham. The education committee through its central care committee has built up an organization of school care committees which now covers nearly the whole of the city. The scheme operates under the Choice of Employment Act and was approved by the board of education in consultation with the Board of Trade in July, 1911. An integral part of the Birmingham scheme is the chain of juvenile labor exchanges distributed at central points throughout the city, in the management of which there is the closest cooperation between the school and Board of Trade officials. A corps of nearly 1,500 men and women, called helpers, undertake to interest themselves in the individual children and their parents who use the labor exchanges. During the first 17 months nearly 11,000 applications were received from employers, and 7,000 children under 17 years of age were placed, besides numbers of other cases in which the helpers themselves undertook to counsel and place the children.

Birmingham is fortunate in the variety of its skilled occupations. Although there is a vast amount of unskilled work, likely to increase with constant improvement in labor-saving machinery, yet the metal trades, the printing trade, and other industries offer satisfactory opportunities to a large number of workers. To some degree, therefore, the problem of starting young workers in Birmingham is less severe than in Liverpool or London. Nothwithstanding these relative advantages, however, a study of the Birmingham enterprise only strengthens the conviction which comes to every student of vocational guidance work anywhere, namely, that placement for children under 18 is at best a makeshift so long as the public neglects to put in force certain fundamental social policies through legislation, which policies will be discussed in the closing chapters.

These fundamentals, it should be said, are keenly appreciated by the men and women who are devoting themselves to the youth of Birmingham. About 13,000 boys and girls leave the elementary schools in that city each year; most of them are absorbed by offices, factories, workshops, and warehouses. The need of guidance and training is apparent as soon as the careers of these children are scrutinized. To meet this need, the following plan, in active operation for more than two years, is in charge of the central care committee which devotes its attention to the industrial problems of boys and girls from the time they leave school until they are 17 years of age. This committee consists of six members of the education committee, four representatives of teachers, three of employers, three of workmen,

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four social workers, the school medical officer, and others. The committee carries on its work through two sets of agencies (1) the juvenile employment exchanges, and (2) school care committees.

1. THE CENTRAL JUVENILE EMPLOYMENT EXCHANGE.

This is in charge of an officer specially appointed by the Board of Trade on account of his knowledge, training, and fitness for dealing with the employment of juveniles. He attends the meetings of the central care committee and acts in consultation with their officer.

The chief work of the exchange is:

(1) To receive and register applicants for employment from youths and girls under 17 years of age.

(2) To receive and register applications from employers for juvenile employees.

(3) To endeavor to place the applicants for employment in the situations for which they are best suited and in which they are likely to be most successful.

The exchange is in a good position to select the applicant, because both the exchange and the central care committee have accumulated an immense amount of information about the various trades of the city, and so can advise as to wages, prospects, and conditions in any trade. It knows what trades lead to regular and improving work, and can caution against bad conditions and prospects.

By the time a child applies for a post, the officials above mentioned will have in their possession a report concerning it from the head teacher of its school, from the school medical officer, and from the school care committee helper. In the first 12 months 7,180 applicants were received from employers, and 4,907 were filled.

For the convenience of parents and juvenile applicants five branch exchanges have been opened in various parts of the city.

2. SCHOOL CARE COMMITTEES.

The scheme provides for the appointment of a school care committee for each elementary school in the city. Many schools thus have their own care committees. In a number of cases it has been found advisable to group several neighboring schools under one care committee. These committees consist of school managers, teachers, and others who are prepared to interest themselves actively in boys and girls. The members are assigned as "helpers" to a small number of children each. The helper is put in touch with the boys or girls about three months before they leave school, and at once tries to set up a friendly relation with the parents as well as with the children by visits to the

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home or by other means. The children are encouraged to talk about what they would like to be, the parents about what they have in view. When there are vague or unsuitable proposals for a child's employment, or no plans at all, the parents and the child are urged to attend at the juvenile employment exchange, and thereby to find the best available post for which the child is suited. To rouse the sense of parental responsibility, to lead the well-meaning but uninformed parents to industrial knowledge and right action, to encourage the choice of skilled employment rather than employment with no prospect of advancement for the boy—these are among the helper's aims on the industrial side, while the employment exchanges provide the means of giving effect to the school care committee's work.

The helper endeavors to keep in touch with the boy or girl for about three years. This, as regards employment, is necessary to counteract the aimless drifting or the capricious change from job to job, to give encouragement to face and overcome difficulties, to see that, if changes are advisable, they are made for the youth's benefit and do not give rise to intervals of disastrous unemployment.

The conditions under which boys and girls are employed are in many places quite unsatisfactory, and have a bad effect morally or physically, or both. Information is gathered by the central care committee and the juvenile employment exchanges, which some day doubtless will be used to improve these conditions.

FURTHER EDUCATION AND KINDRED INFLUENCES.

The helper takes an interest, and stimulates the parents' interests too, in further education of the boys and girls. They are urged, where the hours of work allow, to join classes at the technical schools, schools of art, evening continuation schools, or at such institutions as may be most suitable to the individual cases.

Some school care committees concern themselves with the means of recreation and assist with boys' or girls' clubs.

Again, meetings of parents are held from time to time, such as have already been organized by several school care committees; also meetings of boys and girls about to leave school or who have recently left. These meetings are found to be valuable means of rousing interest in the future well-being of the children.

The helper's notebook is an interesting device for keeping track not only of the children but of the helper's effectiveness as well. These notebooks when carefully employed are a veritable store of social information. The inside of the cover of each book is printed in the manner indicated on pages 68 and 69. Blank pages are inserted for the helper's notes, the width of which is such that the edges reach

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the vertical line. The ruled lines for the notes continue the horizontal printed lines of the cover. It is thus unnecessary to print the "headings" on each page, and the "fillers," or blank pages, may be easily renewed.

The duties outlined by the Birmingham education committee for the school care committees are given in full as they clearly indicate the nature of the work expected of each committee:

DUTIES OF SCHOOL CARE COMMITTEES.

1. Members of school care committees should do their best to influence the industrial history and character of the children under their care by insuring that more account be taken of the needs of individual cases and of the general conditions of industry than is possible at present. They should also encourage the wider use of educational institutions of all sorts after the age of compulsory attendance has been passed. Further, they should not only try to influence the child, but also the parents, whose cooperation and support is in the long run absolutely essential.

2. Any person who is already taking an interest in boys or girls between the ages of 13 and 17, or who is otherwise in close touch with families with children of that age, will become ipso facto members of the care committee of the school to which the child belongs or belonged.

3. Three months before a child leaves school the responsible helper and the head teacher will confer together as to the child's future, and then consult with and advise the child and its parents. Should a further interview be thought advisable, it would be held one month before the child leaves school. These interviews can take place wherever most convenient.

4. When a child has left school and started work the helper shall keep in effective touch with him and his home, and shall continue to advise and encourage him and his parents in every way. (The frequency of his visits or interviews will, of course, vary with the troublesomeness or ignorance of the case.)

5. It is most important that the helper should take care to keep himself informed of all changes in the work and of the home conditions of the child, and report immediately to the secretary of the school care committee—(where a child has left work) the date and cause of leaving; (where a child has started work) the employer's name and trade, nature of work done by the child, wages (piece or day), hours (short time, casual, extra long hours).

It is also desirable to have a general report on the child's progress in work and character twice a year.

6. The helper should give every encouragement to the child to use the juvenile employment exchange to which his school is attached.

7. When the helper needs information about a child under his care he may apply to the secretary of the school care committee for access to the confidential records.

8. The helper should attend his school care committee meetings, when he may bring up individual cases in which he has difficulty in deciding what to advise. Helpers will not be expected to bring up ordinary cases.

9. Where a helper is brought into touch with unsuitable conditions in any trade, or with any other problems connected with child labor, he may bring the matter up for discussion at the next school care committee meeting. If considered advisable, the school care committee will send up a report on the matter to the branch committee, who shall in turn forward it, with their comments, to the central care committee. Until branch care committees are formed the report would be sent direct to the central care committee.

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[Cover of note book; left.]

(1) Child's name. (2) No.	
Address.....	
School.....	
(1) Standard. (2) Date of leaving.	
Home conditions.....	
Father's occupation.....	
Mother's occupation..... (if any)	
No. in family— (1) over 14; (2) under 14.	
Social or other organization.....	
Evening school or classes child promises to attend.	
(1) Promise or (2) Plans for employment.	
Will application be made to the J. E. Exchange.	
Dates of visits.....	

REMARKS AND NOTES.

SUGGESTIONS TO SCHOOL CARE COMMITTEES AND HELPERS FOR FILLING UP HELPER'S REPORTS.

[The references in these suggestions are to the helper's report cards.]

1—Members of school care committees and helpers will recognize that it is most important that the greatest care be taken to preserve the strictly confidential character of the teacher's reports and helper's reports, and to guard against their loss. It can be readily seen that friction and other disagreeable consequences might arise between head teachers and parents in some cases if the remarks of the former were known to the latter, and similarly the work of school care committees and helpers would be hampered, and probably rendered impossible if the helper's reports were not in careful keeping, and always treated as strictly confidential.

2—The first particulars as to "School," "Standard," etc., can be filled in from the head teacher's report.

3—With regard to "Date of leaving," helpers should guard against giving or countenancing the idea that a child may leave school before the date of legal exemption.

4—The entry under "Home conditions" should be brief observations of the home, evidence of care, or lack of it, in bringing up children, etc.

5—Under No. 4 on the helper's report card should be given the name of any club or organization, whether religious, social, educational, or recreative, with which the child is connected.

6—As to No. 5, it is important to bring home to parents and children the necessity of continued education. Probably the teacher's report card will give the name of the evening school or other classes which the child has promised to attend. If so, the helper can give valuable encouragement, and fortify the child in its intention to go to evening school and to continue there. If the head teacher's report does not record a promise, the helper should make special efforts to obtain one.

7—If the child has a definite promise of employment, please enter "Yes" after 6 (1), and give under 7 particulars of the employment promised. If the child has no definite promise, but plans have been formed for the child's employment, enter "Yes" under 6 (2), and then give particulars under 7.

8—With regard to 8, it is most important that free use be made of the juvenile employment exchange, in order that the work of school care committees, helpers, etc., may bear full fruit. Hence, if the child has no definite promise of or plans for work, it should be urged to register at the employment exchange, 168 Corporation Street, or one of the branches. Even if there is employment in view, and this does not appear satisfactory, the child should still be persuaded, if possible, to ascertain by application at the exchange whether something better can not be obtained.

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(Cover of note book (right.)

9 Under "General remarks" may, of course, be entered any observations of importance for which provision is not made elsewhere. Amongst other things, the helper's estimate of the degree of necessity for after care and of the frequency of subsequent visits would be useful. Naturally, some cases will need almost constant attention, with frequent visits, while others will require very little.

10 As Record of Further Education (see reverse side of form) in the column headed "Subjects or course." If a student is taking one of the recognized courses, the entry "Preparatory," "Commercial," "Technical (or Industrial)," "General," "Domestic," as the case may be, will be sufficient, or the individual subjects may be entered.

11 – If a student leaves during the session, the reason for leaving, if ascertained, should be entered in the last column. At the end of a session or term an entry as to progress made will be useful. Head teachers of evening schools will be pleased to cooperate with school care committees, and visits or inquiries will be welcomed.

12—As to Record of Employment, the space for some of the entries may be found insufficient, but there is no objection to two lines being used for each situation; for example, the name of the employer could be put on one line, and the address on the next in the third column.

13 – In column 4 should be entered the general designation of the trade, and in column 5 the description of the particular branch or phase of the trade in which the child is engaged.

14—In the last column, the entry "Exchange" will be sufficient if the employment was obtained through the juvenile employment exchange; "School," if through the agency of the school; "Self," if the employment was obtained by the child or its parents.

15—It is often very important to know why a boy or girl has left a situation, or how he or she is getting on in it. Hence, it is hoped that entries on these points will be made under "General remarks."

16 –In cases where changes of occupation are so frequent, and conditions such that the ordinary helper's report form does not provide sufficient space for record, a supplementary helper's report form should be used.

17 –Great discretion and tact will be needed in obtaining the information for the helper's report. Any visit should be made in a friendly way, and as a *helper* indeed. If found advisable, the information can be obtained gradually, and so entered. In most cases a series of direct questions on a first visit would be regarded as highly inquisitive, and might give positive offense.

18 In ordinary cases the helper's first report on any child should be sent to the honorable secretary of the school care committee in time to allow of its being sent to the education department a month before the child is expected to leave school.

REMARKS, NOTES, AND INFORMATION ON CHANGES OF EMPLOYMENT, ETC.

FURTHER EDUCATION.

Evening school or class attended by child.....

(1) Date of entering
(2) Leaving

Subjects or course.....

Progress or reason for leaving.....

EMPLOYMENT.

Name of employer.....

Address of employer.....

(1) Date of commencing
(2) Leaving

Trade and nature of work..

(1) Weekly wage
(2) Daily hours

How employment obtained..

Progress or reason for leaving.....

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At the inception of the Birmingham work the cooperation of the chamber of commerce was secured for the purpose of inquiring among the employers representing the leading trades of the city as to the conditions, requirements of different trades, and the possibilities of further training for the young work people. The questionnaire used in that inquiry deserves republication and is here given:

INDUSTRIAL TRAINING INQUIRY.

Name of firm.....
Address of firm.....
Trade.....
Branches of trade carried on or particulars of goods manufactured.....
.....
.....

1. *Employers' requirements.*

(1) Is there a sufficient supply of trained workmen, or do you have difficulty in getting them?

.....

(2) (*a*) For what different branches of work do you employ boys in your trade?

.....

(*b*) How long would it take an average boy to learn each branch?

.....

(*c*) At what age should he begin?

.....

(*d*) What special characteristics are most needed?

.....

(3) (*a*) Do you want general capacity and training depending on dexterity, powers of observation, self reliance, initiative, and adaptability?

.....

(*b*) Or do you require only mechanical skill?

.....

(4) (*a*) Would there be any opening for youths if given all-round training in your trade?

.....

(*b*) Or do you want only specialization in parts of it, or in single processes?

.....

2. *Supply of boys:*

(1) Do you have any difficulty in getting boys?

.....

(2) How do you get boys—through the labor exchange, by newspaper advertisement, or by window or works notice?

.....

(3) (*a*) About how long do boys stay with you on the average?

.....

(*b*) Is it long enough to learn the trade?

.....

(*c*) What hold have you over the boys, or what means of control?

.....

(4) (*a*) Are the boys you get satisfactory?

.....

(*b*) If not, in what way are they unsatisfactory?

.....

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(5) Do you suffer from the frequent changes of jobs common amongst Birmingham boys? What do you consider to be the cause of the frequent changes?

(6) Is there anything objectionable to boys in your trade? If so, have you any suggestions for removing objections or making the trade more attractive?

3. *Schemes of training:*

(1) Is there apprenticeship? Or any other definite agreed scheme for training?

(2) If so, give details—premium (if any), commencing wages, raises (amount and time), indentures (if any) or other agreement.

(3) Give criticisms or suggestions for amendment.

(4) Is there any subsequent improvers' stage? If so, give particulars.

(5) (*a*) Is technical instruction of any use?

(*b*) Have you any scheme of cooperation with any technical school, evening schools, or other educational institutions?

(*c*) Give general statement of what is wanted and criticisms of existing classes.

(6) What modification (if any) of the present elementary school curriculum would you suggest to fit boys to enter your trade?

4. *Prospects of boys:*

(1) What number of boys and youths (say 14 to 18) does your firm employ?

(2) What number of men?

(3) (*a*) Can your trade absorb all the boys you employ when they become men?

(*b*) If so, at what?

(4) (*a*) If not, what percentage (or proportion) is absorbed?

(*b*) At what age do the others drop out?

(*c*) Do you know what becomes of them?

(5) From what other sources are your men recruited, if not from boys who have been in the trade?

(6) (*a*) What becomes of machine minders?

(*b*) What is the class of boy doing this work?

(*c*) How long on the same machine and what arrangements for acquiring progressive experience of machines?

(7) If any special interest is taken by the management in the boys, what form does it take; e. g., treatment in the works, helping them to learn the trade, continuative education, and generally taking account of the doings and progress? Are there any special instructions to foremen on this?

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5. *Hours and wages:*

(1) Hours—

(*a*) What is the usual number of hours worked per week?

.....

(*b*) What are the ordinary daily hours? From ..... to .....

(*c*) What, if any, seasonal variation of hours?

.....

(2) Wages—

(*a*) What are the commencing wages of boys (apart from apprentices already dealt with in 3 (2)).

.....

(*b*) What are the usual subsequent raises (state amounts and periods or ages)?

.....

(*c*) Does piecework apply at all to boys and youths? If so, please give average earnings in piecework at different ages.

.....

(*d*) Does "subcontracting" affect the boys and youths? If so, give particulars.

.....

6. *General observations.*

The following documents give a good insight into the workings of the school care committees:

CENTRAL CARE COMMITTEE.

Report of the Conference between Members of the Central Care Committee and Honorary Officers of School Care Committees.

The second half yearly conference between members of the central care committee and the honorary officers of school care committees took place at the Education Offices, Margaret Street, on Tuesday, November 26, 1912.

There were present 69 ladies and gentlemen representing the central care committee, two branch care committees, and 40 school care committees and subcommittees. Eighteen school care committees and subcommittees were not represented

Councilor Norman Chamberlain, chairman of the central care committee, presided.

The agenda of 12 items consisted, with two exceptions, of matters submitted by school care committees themselves for discussion. The following notes and recommendations are given on the items seriatim.

1. *Old scholars' clubs.* (Farm Street, etc., school care committee.)

After the usefulness of old scholars' clubs in the work of the school care committtes and the desirability of the central care committee providing facilities for meeting had been briefly advocated, the chairman announced that rooms in schools could be used free of rent, but subject to payment by the clubs of the caretaker's fee. The central care committee had tried to secure the reduction of that fee, or the power to pay it, but the present had been shown to be an unsuitable time to press for this concession.

2. *Apprenticeship.* (Farm Street, etc., school care committee).

In reply to inquiries, the chairman announced that the central care committee was about to begin an inquiry into the whole question of industrial training, including apprenticeship, in Birmingham.

3. *Clerical work.* (St. Thomas's school care committee.)

Mr. Birch and other speakers said that the amount of clerical work falling upon honorary secretaries was very heavy, and that unless it could be reduced, or at least its increase arrested, it would become impossible for honorary secretaries to cope with

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It was agreed that several forms recently supplied had appreciably reduced cal work in certain directions. The following suggestions were made:

1) That the heading of the helpers' reports should be filled in at the office before issue.

2) That where a committee deals with more than one school, a registrar be appointed for each school or department.

3) That the cards for summoning meetings be sent from the office.

4. *Return of helpers' reports.* (Bournville and Stirchley school care committee.)

The discussion showed that the difficulty of getting in the helpers' reports is very eat and a serious problem. Helpers who have taken cards or to whom cards have en sent have in numbers of cases failed to attend meetings or to send in their ports, even after repeated requests. One honorary secretary had been able to obtain return of only 20 reports from 93 cases.

gestions.

1) Councilor Lord urged the necessity of holding meetings monthly on a recognized day, of handing out new cases then, and calling for reports on cases taken out at the previous meeting. This had proved useful in establishing the habit of attendance in the Sparkbrook district.

2) That on the next issue of helpers' report cards a note should be printed requesting the return of the report by a specified time. (The chairman stated that this had been done.)

3) That helpers should be supplied, where the honorary secretary deems it necessary, with stamped envelopes for the return of the reports by post.

4) That head teachers be requested to use every possible means to obtain and give the correct name of the organization to which a child belongs.

5) That honorary secretaries send to the central care department the name of any organization which does not return the helpers' reports.

6. *Second reports.* (Sparkbrook school care committee.)

Mrs. Jesper urged the necessity of the helper being in close touch with the child at the actual time of leaving school and commencing work, and of submitting a second report as soon as the child is placed at work. This is the critical time.

and 7. *Branch care committees.* (Sparkbrook school care committee.)

The formation of branch care committees was advocated, so that school care committees should cooperate and not work as separate units possibly in some matters in competition with one another. It was further advanced that it was a good arrangement to hold all meetings in a district on the same evening in the week but in different weeks for different committees. The chairman said the policy of the central care committee had so far been to set up branch care committees as soon as the demand for arose in a district, and to leave school care committees freedom to make their own arrangements as to meetings.

8. *Periodical bulletin.* (Camden Street, etc., school care committee.)

Mr. Mackenzie moved that the central care committee be recommended to issue a quarterly bulletin to helpers, giving instructions, notes and information concerning the school care committees and their work throughout the city. Many helpers are unable to attend meetings regularly, and either they lost touch with the work, or the honorary secretary had to send out periodically his own bulletin compiled from various communications, circulars, etc., received from the central care department.

The opinion was expressed that the bulletin, if issued, should be supplied gratis and sent direct by post from the central care department. It would relieve the honorary secretaries considerably and would keep the interest of helpers alive.

Recommendation (carried by 11 votes to 8, the majority not voting): "That the central care committee be asked to issue such a bulletin quarterly."

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9. *Head teachers and the juvenile employment exchange.* (Camden Street, etc., school care committee.)

Mr. J. T. Booth, on behalf of his committee, raised the question whether the time had not now arrived when all applications from employers for boys and girls should be referred to the exchange. He stated that in numbers of schools very few, if any, children were placed through the exchange. Some head teachers would like to be relieved of the responsibility of sending children to work on request from employers, and also many children did not get the advantages the exchange might give them. Several head teachers spoke against the suggestion, and the feeling of the conference being against such a step at present, the matter dropped.

10. *School leaving age.*

The conference closed with announcements by the chairman concerning forthcoming lectures to helpers, the first by Mr. C. E. B. Russell, of Manchester. There was not time to deal with the concluding item of the agenda, viz: the present state of the central care committee's work.

Central Care Committee.

Juvenile Employment Exchanges and Domestic Service for Girls.

Report of the special committee appointed to consider the draft scheme for the appointment of a domestic service subcommittee of the central care committee, to act with the juvenile employment exchange in placing girls between 14 and 17 years of age in domestic service.

Your committee met on February 5, 1913. * * *

The subcommittee were unanimously of opinion that full advantage should be taken of the permission now granted by the Board of Trade to juvenile employment exchanges to undertake, under certain conditions, the placing of girls in domestic service, and they accordingly recommend that measures be taken to commence such work as soon as possible. This recommendation is made on the following grounds:

(1) The local education authority has, through the medium of the exchange, been able to give guidance and assistance to girls leaving school in taking up every class of employment except domestic service, yet domestic service is a suitable occupation and one to be encouraged under proper conditions.

Both head teachers' and helpers' reports indicate domestic service as desired and desirable in a number of cases. It is inconsistent to refuse the helper and the child the same assistance as is available in every other occupation.

(2) The existing means and organizations for bringing employers and young girls desiring domestic service into touch with each other are inadequate.

(3) Judicious aftercare is desirable in the case of many girls placed in domestic service.

(4) Such a subcommittee would be able to ascertain what exactly are the facilities in the city for training girls for domestic service, and to make suggestions for extension and improvement from time to time.

Your committee examined the draft scheme, which in its general lines has already been approved by the central care committee, and are of opinion that but little alteration is necessary. They recommend that the subcommittee should consist of 20 members, instead of 12 to 16 as previously suggested, and that its constitution should be:

4 Members of the central care committee.
4 Representatives of the girls' friendly society.
2 Representatives of the Young Women's Christian Association.
2 Representatives of Roman Catholics.
1 Representative of Graham Street School.
1 Representative of the ladies' committee of the Sunday School Union.
7 Representatives of branch care committees and school care committees, one to represent each existing branch care committee, and one to be appointed from each of four other districts of the city.

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Additions to the draft scheme, as referred to the subcommittee, are recommended to make clear (1) that the subcommittee shall have power to appoint or approve visitors, and (2) that in cases of girls placed by the juvenile employment exchange who belong to or may join certain organizations, e. g., the girls' friendly society or the Young Women's Christian Society, the supervision or aftercare shall be referred to the organization concerned, subject to such reports being made as the subcommittee may deem advisable.

The scheme embodying the suggested amendments would be as follows:

1 That a domestic service subcommittee be appointed, consisting of 4 members of the central care committee, 4 representatives of the girls' friendly society, 2 representatives of the Young Women's Christian Association, 2 representatives of Roman Catholics, 1 representative of Graham Street School, 1 representative of the ladies' committee of the Sunday School Union, 7 representatives of branch care committees and school care committees (one to represent each existing branch care committee and one to be appointed from each of four other districts of the city); and that the subcommittee have power to appoint or approve visitors.

2. That the functions of the subcommittee be as follows: (1) To make recommendations from time to time to the central care committee on matters of general policy. (2) To establish a rota, one member to be present at the exchange at such times as shall be arranged for the purpose of advising upon the placing of domestic servants.

3. The duties of the member present will be: (1) To discuss the vacancies notified to the exchange. (2) To offer such advice as she may deem desirable to the exchange officer. (3) To report on the work done to the next meeting of the committee. (4) To report to the committee any cases requiring special investigation.

4. The duties of the committee at its weekly meeting will be: (1) To receive a report as to the week's work. (2) To receive notifications from the rota members as to vacancies of which they have advised acceptance on their own responsibility. (3) To consider the vacancies referred to them for further investigation. (4) To arrange for any investigation that may be necessary with regard to these vacancies, and for the result of such investigations to be reported at once to the exchange. (5) To receive and consider reports on such vacancies as have been specially investigated. (6) To arrange for such supervision as may be necessary of the girls placed by the exchange, referring girls who belong or may become attached to the girls' friendly society and Young Women's Christian Association and similar organizations to these organizations for supervision and report. (7) To receive the reports from the helpers who have undertaken such supervision.

5 To confer twice yearly with the ladies acting as helpers in the case of girls placed in domestic service by the exchange, and with others specially interested in the question of domestic service as an occupation for girls and in the training necessary for it.

REPORT OF THE EXECUTIVE COMMITTEE TO THE CENTRAL CARE COMMITTEE.

To be presented at a meeting of the central care committee to be held on Monday, April 7, 1913, at 5 p. m.

1. *Domestic service subcommittee.*—The five organizations which were invited to cooperate with the central care committee in placing young girls in domestic service through the juvenile employment exchange have all intimated their willingness to do so, and to nominate representatives on the subcommittee. * * *

2. *Health week.*—It is the desire of the "health week" committee that the central care committee and the school care committees should assist in any way open to them in the propaganda of "health week" which commences on April 27. Your chairman has invited the honorary secretaries of school care committees to take part in a conference on the 11th instant, and to discuss the most effective means of helping in the work.

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3. *Head teachers' reports—health section.*—The hygiene subcommittee have considered the resolution of the central care committee asking whether arrangements could be made for the final medical examination of school children to take place sufficiently long before the date of leaving to allow entries by the medical officers to be made on all head teachers' reports, which are forwarded to the office about four months before the children leave school. In response the hygiene subcommittee have passed the following resolution:

That the central care committee be informed that this subcommittee will place at their disposal the schedules of all children who have been examined prior to their leaving school, but that the examinations will have extended over the whole year and will not necessarily have taken place four months before the children leave school.

Your committee consider that the proposed alteration would give approximately only the same result as before, and would involve a much greater amount of work in the central care department than the present arrangement gives the medical staff. They therefore recommend that the hygiene subcommittee be informed that the central care committee would prefer the continuance of the present system.

4. *Free admission to evening schools.*—The attention of the technical education and evening schools subcommittee was invited to the recommendation of several school care committees to the effect that there should be means available to school care committees to obtain free admission to evening schools for children in cases where the investigations of the committees showed that children were actually prevented from attending such schools by inability to pay the fees. The technical education and evening schools subcommittee on the 10th of March resolved as follows:

That the central care committee be informed that this subcommittee are submitting to the education committee at its meeting on the 19th March an amended scheme of free admission to the evening and technical schools of the city.

This scheme has now been approved by the education committee, and empowers head teachers of day schools to award a certain number of free admissions to evening schools. There is also provision for award to scholars already in evening schools of free admissions to subsequent sessions of evening schools and to technical schools. Your committee recommend that a communication be sent to head teachers requesting that in making their award of free admissions they will have due regard to the recommendations of school care committees.

5. *Industrial arrangements in East Birmingham.*—The East Birmingham branch care committee have been successful in getting into touch with several of the large firms in the locality and securing their representation on the branch care committee, and on several school care committees. This action prepared the way for arrangements which have been provisionally completed with the Metropolitan Carriage & Wagon Building Co. (Ltd.), and the Wolseley Tool & Motor Car Co. (Ltd.), according to which these firms will engage all their juvenile employees through the juvenile employment exchange, giving preference to those recommended through the school care committee system of the district. Both firms will give facilities for the boys to attend evening schools and classes, and will encourage them to do so.

6. *Gathering of helpers at Uffculme.*—Through the kindness of Mr. Barrow Cadbury the application for the use of Uffculme for a gathering of helpers on September 6 next has been successful. Your committee have appointed Miss Barrow, Councilor Chamberlain, and the Rev. H. S. Pelham to make the necessary arrangements in due course.

7. *Trades for physically defective children.*—In response to a request from the special school after care employment subcommittee your committee recommend that in the pamphlets on local trades now in course of preparation an appendix be inserted giving advice in regard to suitable employment for deaf and physically defective children. The subcommittee mentioned will so far as possible furnish the matter for the appendix.

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8. *Receipt of grant from board of education.*—The board of education have paid to the education committee the sum of £236 7s. 3d., being the board's contribution toward the salaries of the executive officers, from the approval of the scheme in July, 1911, to December 31, 1912.

9. *Assistant caretakers.*—It will be remembered that some time ago the central care committee made representations to the sites and buildings subcommittee concerning the position of assistant school caretakers, recommending that the practice of discontinuing their services at the age of 21 years should be abandoned, and that if suitable they should be employed until they could be absorbed as caretakers. The sites and buildings subcommittee were unable to see their way to make the arrangement suggested. Your committee have now learned that the subcommittee have decided to make such appointments in future subject to termination at 19 years of age.

10. *Pamphlets on trades for boys.*—Your committee have had before them a complete set of penny guides to trades and handicrafts for youths and girls leaving school, issued by George Phillip & Son, (Ltd.), of which about 20 have been published. They feel that a set comprising the books on each of the local trades would be of much value to the school care committees, and they therefore recommend that sufficient sets be purchased to furnish one set to each school care committee.

11. *Return based on head teachers' reports.*—The following is a statement compiled from the head teachers' reports received during February in respect of children due to leave school before the end of June:

	All schools.				Schools with care committees.			
	Boys.	Girls.	Total.	Per cent.	Boys.	Girls.	Total.	Per cent.
Number of cards received	516	514	1,030	.....	359	331	690	67.0
Number of children attached to some organization	337	360	697	67.7	242	247	489	78.7
Number of children who promised to attend some evening school	279	154	433	42.0	199	110	309	44.8
Number of medical reports appearing on head teachers' reports	192	210	402	39.0	135	138	273	39.6
Number of those examined requiring medical attention	26	46	72	19.9	21	28	49	18.0

Number of cards marked with discriminatory letter..... 937, or 91 per cent.
Number of cards marked A..... 183, or 19.5 per cent.
Number of cards marked B..... 384, or 41 per cent.
Number of cards marked C..... 370, or 39.5 per cent.
Number of cards not marked..... 93, or 9 per cent.

School standard attained by children expected to leave school during June, 1913.

Number of cards marked, 954, or 92.6 per cent of total cards sent in.

Number of children in—	Per cent of total.
Ex-seventh standard	51, or 5.3
Seventh standard	332, or 34.8
Sixth standard	288, or 30.2
Fifth standard	176, or 18.4
Fourth standard	81, or 8.5
Third standard	20, or 2.1
Second standard	6, or .7

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12. *Return of employment obtained during February.*—The following is a statement concerning employment obtained during the month of February:

School children obtaining employment.	Total.	Percentage.
Number of children reported as having obtained employment on leaving school	752	.....
Reported by head teachers as having obtained employment through medium of the school	57	7.5
Obtained employment through the juvenile employment exchange	190	25.3
Reported by head teachers as having obtained employment by their own or their parents' efforts	505	67.2

13. *Juvenile employment exchange return.*—The following figures have been supplied by the juvenile employment exchange in respect of the four weeks ended Friday, March 28, 1913, viz:

	Applications by boys and girls.			Vacancies notified by employers.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.
Central exchange	206	53	259	279	87	366
Jewelers' exchange	33	42	75	40	92	132
Aston exchange	39	45	84	39	34	73
Handsworth exchange	36	10	46	15	24	39
Selly Oak exchange	41	45	86	20	37	57
Sparkhill exchange	28	22	51	5	14	19
Total (4 weeks)	383	218	601	398	288	686
Corresponding totals for February, 1913 (4 weeks)	509	354	863	466	367	833
Corresponding totals for March, 1912 (5 weeks)	601	320	921	496	235	731

Vacancies filled by employment exchanges.

	Vacancies filled.			Vacancies filled by children direct from school.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.
Central exchange	173	44	217	50	22	72
Jewelers' exchange	25	19	44	10	9	19
Aston exchange	18	34	52	4	6	10
Handsworth exchange	2	17	19	.....	7	7
Selly Oak exchange	19	35	54	8	22	30
Sparkhill exchange	5	4	9	.....	.....	.....
Total (4 weeks)	242	153	395	72	66	138
Corresponding totals for February, 1913 (4 weeks)	308	253	561	98	92	190
Corresponding totals for March, 1912 (5 weeks)	304	153	457	.....	.....	84

14. *Helpers' reports.*—The number of helpers' reports received from school care committees during each of the last six months is as follows:

	First reports.	Second reports.	Total.
October, 1912	316	.....	316
November, 1912	702	141	843
December, 1912	403	107	510
January, 1913	278	19	297
February, 1913	449	28	477
March, 1913	513	95	608
Total	2,661	390	3,051

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The relation of the Birmingham teachers to the scheme herein outlined is real and active. Many head teachers use commendable care in the reports on the children who leave school. These reports indicate the groups of children which in the teacher's judgment need a good deal of aftercare, those which need only a moderate amount, and those which need no aftercare except perhaps as to continued education. For the first eight months during which these records were kept, nearly half of about 9,000 cases were referred to the school care committees, which in turn called upon the helpers for assistance. Many organizations in Birmingham, particularly those interested in boys, have been enlisted in the scheme. Here social workers and teachers, as is the case in Boston, New York, Cincinnati, and other cities, have been giving their time and their energy generously to the work. Parents' meetings are carried on by many school care committees. Employers are often the speakers at such meetings.

It should be borne in mind that the Birmingham experiment coincides with an unusual state of industrial prosperity. There are more vacancies than there are boys. Such trades as the engineering, brass, jewelry, and silversmiths can not secure enough apprentices. They are glad to have the juvenile employment exchange select workers, even for the more advanced positions. This is due somewhat to the improved quality of the applicants who come to these labor exchanges. It has been the practice of teachers even in cities where labor exchanges are maintained to look after the brightest children themselves, or the favorites of the school, and leave to the labor exchange the difficult children. Obviously this is not cooperation. In Birmingham, on the other hand, many of the schools make a point of advising all the children who leave school to go with their parents to the exchanges. There is still a good deal of placement by the schools, and it is greatly to be hoped that this will in time diminish, if not wholly disappear.

With reference to girl labor, Birmingham presents the problem characteristic of our own American cities. The girls desire office work and too many take courses in shorthand and typewriting. The start in life for these girls is difficult indeed and the outcome quite unsatisfactory. The market for stenographers and office workers is overstocked. The element amongst whom the exchange renders its most useful service is that group of girls who, desiring a manual occupation, have been guided into the better trades, such as bookbinding, leather stitching, etc. As in the case of the boys, there is a great demand for girl labor. The city has not adequately faced, and few cities have faced, the problem of vocational training for girls. Two useful handbooks have been issued by the central care committee as part of a series on the principal trades and occupations in Birmingham. One deals with the various trades for women and girls; the other on printing and allied trades. There is much effort to secure continued training in evening schools for the children placed.

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An idea of the occupations for boys and girls and the number placed from June 1, 1911, to October 31, 1912, may be gained from the tables which follow, but it should be explained that the figures with reference to the messengers, stable boys, etc., apply mostly to boys over 16, and that many of the employers have placed the boys in these positions after an understanding with the labor exchange officials that advancement was fairly certain after a few months.

Juvenile employment exchange return showing the number of vacancies notified and the number of vacancies filled, classified under different trades or occupations.

The numbers refer to all children placed from 14 to 17 years of age in the period June 1, 1911, to Oct. 31, 1912.

Trades and occupations.	Vacancies notified.	Vacancies filled.
OCCUPATIONS FOR BOYS.		
Telegraph messenger service	83	80
Art, music	26	18
Hotel service	151	104
Business clerks' work	481	346
Van boys, stable and groom work	170	115
Warehouse	384	235
Messenger and porter service	581	434
Rolling mills	115	90
Tube manufacture	42	34
Pattern making	11	7
Iron-foundry work	47	18
Brass-foundry work	554	286
Blacksmithing	42	7
Engineering (general)	323	269
Polishing (metal)	270	183
Drilling, milling	374	302
Toolmaking	148	119
Gun manufacturing	24	22
Wire drawing	25	14
Miscellaneous metal work	328	181
Cycle manufacture	71	37
Motor car manufacture	24	14
Goldsmith, silversmith, and jeweler work	383	168
Electrical apparatus making	40	29
Carpentering and joining	143	76
Painting and decorating	55	20
Plumbing and gas fitting	139	49
Cabinet making	45	23
Upholstering	26	9
Wood carving and engraving	19	11
Other work in wood	29	11
Glass manufacture	75	43
Soap manufacture	21	18
Rubber work	33	23
Leather-goods work	28	11
Printing and bookbinding	175	92
Tailoring	22	7
Bootmaking	23	8
Baking and biscuit manufacture	33	16
Greengrocery	27	8
Cocoa and chocolate manufacture	151	150
Butchering	25	9
Brewing	28	19
Electrical engineering	62	48
OCCUPATIONS FOR BOYS—continued.		
Laboring	239	122
Miscellaneous employments [1]	175	80
	6,270	3,965
OCCUPATIONS FOR GIRLS.		
Domestic service (daily girls)	21	10
Laundry	50	24
Daily service	135	70
Clerking	118	96
Warehouse	724	511
Errand-girl service	83	17
Core making	21	20
Polishing, brass	26	19
Press, drill, and capstan work	629	456
Screw working	15	8
White-metal working	94	43
Lacquering	125	91
Soldering	30	18
Cycle making	65	45
Jewelry working	148	64
General factory working	58	12
Electrical working	39	21
Weighing apparatus making	15	18
French polishing	45	20
Upholstering	22	17
Cartridge making	270	267
Candle making	13	11
Soap making	16	15
Rubber work	53	50
Leather work	69	50
Paper bag making	50	33
Printing	128	70
Bookbinding	15	10
Draping	15	10
Tailoring	47	13
Dressmaking	35	18
Machinists' trade	36	25
Button making	68	67
Cocoa and chocolate making	667	638
Japanning	23	15
Shop service	73	23
Factory work	280	85
Miscellaneous employments [2]	171	83
Total	4,492	3,063

[1] Under this heading have been included all trades and occupations in each of which less than 7 boys were placed. They include architecture, photography, gardening, assistant caretakers, railway service, colliery workers, die sinking, lamp making, motor and carriage building, ironmongers, scientific, surgical, weighing and electrical instrument making, bricklaying and plastering, brick and tile manufacture, French polishing, manufacturing chemists, candle and grease manufacture, paper, envelope, and cardboard box manufacture, drapery and clothing trades, japanning, pawnbroking, and various dealers.

[2] Under this heading have been included all trades and occupations in each of which less than 7 girls were placed. They include pupil teacher, theater service, telephone service, pen makers, wireworkers, opticians, shroud makers, glassworkers, brush makers, rope and canvas workers, milliners, mineral-water manufacture, restaurant workers, pawnbrokers, etc.

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Returns showing the vacancies filled by children direct from school through the exchange.

The numbers are given in respect of the various trades and occupations, and cover the period Jan. 1 to Nov. 30, 1912.

BOYS.		BOYS—continued.	
Telegraph messenger service	80	Glass trade	3
Drawing offices	10	Rubber manufacture	8
Hotel service	10	Leather manufacture	3
Office work	114	Brush trade	1
Van boy and stable boy work, etc	3	Printing, bookbinding, etc	30
Warehouse	32	Tailoring	3
Messenger (preliminary to various trades)	84	Boot trade	2
Gardening	2	Cocoa and chocolate manufacture	85
Tube mills	2	Grocery work	2
Rolling mill	3	Electrical engineering	12
Brass working	28	Laboring in factories	9
Blacksmithing	1	Total	683
Engineering (mechanical)	54		
Polishing (metal)	6	GIRLS.	
Tool making	46		
Gun making	5	Pupil-teacher work	1
Miscellaneous metal trades	23	Theater service	1
Cycle trade	5	Laundry-maid service	2
Motor trade	9	Day servant work	21
Jewelry, silversmiths, etc	55	Clerk work	50
Electrical fittings manufacture	12	Warehouse-girl service	104
Carpentering and joining	13	Errand service	6
Plumbing and gasfitting	8	Florist service	1
Furniture, cabinetmaking, etc	10		

The following circulars issued by the central care committee are of interest:

CITY OF BIRMINGHAM EDUCATION COMMITTEE.

CENTRAL CARE COMMITTEE.

To boys about to leave school;

1. You will be leaving school very soon—in a few months probably. It is most important that you should carefully choose the kind of work you want to do.

2. Talk over *now* with your parents and your teacher what sort of work you would like, and what would suit you best.

3. Think of the future. There are many well-paid jobs for boys which end when you are 17 or 18 years old, and which do not train you for anything else. If you go to work of this kind you will find it very hard to make a fresh start at 18. You will probably be out of work a good deal, and have low wages when you are a man.

4. Try to become a skilled workman. Learn a trade if you get the chance. Your wages will very likely be less while you are learning the trade, but you will be much better off later on. Aim at being a first-class workman, and do not be satisfied to become only half-skilled.

5. If you or your parents want to know more about different trades and occupations, go to the Employment Exchange for Boys at 168 Corporation Street, or to the exchange nearest to you. If you want help in getting a suitable situation, call at the exchange a week or two before you leave school and get your name put on the register. Ask your parents to go with you.

6. Some one from the school care committee will very likely call at your home to talk over your future with you and your parents, and to help you in any way he can.

7. Stay at the day school as long as you can. When you leave, join some evening school or class, and choose those classes which will help you in your work. What you learn will be a great help to you.

8. If your situation is a good one with a promising future, stick to it through thick and thin. Even if you think it is not a good one, do not leave it until you have got something really better.

9. Before leaving ask advice from your parents, your old schoolmaster, or your care-committee friend. Also go to the exchange some Friday evening between 6 and 7 p. m.

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10. If you are out of work, go to the exchange any morning. The manager will be glad to see you and to help you to get a suitable situation. But beware of moving from place to place without good reason. It is sure to be a bad thing for you in the end if you do this.[1]

CITY OF BIRMINGHAM EDUCATION COMMITTEE.

CENTRAL CARE COMMITTEE.

Juvenile employment—A word to parents.

To what work do you intend to put your children when they leave school? What trade or other calling have you in view for your boy, what employment for your girl? What are they best fitted for, and likely to succeed in? Have you carefully thought the matter out, and made the best possible plans? These questions are of the greatest importance to you and your children.

Many of you are probably undecided. Some of you perhaps do not fully know what the commerce and industries of the city have to offer in the way of employment for juveniles.

The education committee, acting with the Board of Trade, have adopted a big scheme for giving you information and for helping you to place your children in situations to the greatest advantage.

A central juvenile employment exchange has been opened in Corporation Street, with branches in different parts of the city. Your boys and girls up to 17 years of age are cordially invited to call at the exchanges when in want of a situation. You and they should go there when in need of information and advice about employment. Especially should you consult the exchange if you have a child who will be leaving school soon, and it is best to go some weeks before the child is due to leave.

You may ask why there is any need to change the present way in which children find work, i. e., by their friends or relations speaking for them, by looking in the papers, or by walking round the different factories in the district.

It is quite clear that you will have a larger number of situations from which to choose at our exchanges, as most of the good employers all over the town will be getting their workers from them. Your child will thus be more certain to get there a situation suited to its health, its powers, and its personal ambitions. If a child gets a job for which it is fitted and which it likes, it will do better and be happier than if it has to take a job in the casual and uncertain way which is now usual. Nor will it take so long or mean as much tramping about and so many useless inquiries as now.

You will also be able to find out more correctly and more fully the conditions and prospects in any trade, for the ladies or gentlemen in charge of the exchanges will always be glad to give you advice if you care to ask them.

In many of the schools we are also starting care committees, whose members will take a personal interest in the child during the first three or four anxious years of its working life. They will take especial trouble with children when they are about to leave the day school for good. Just before this happens some member of the care committee, perhaps already known to you, will be only too glad to talk over with you and your child the plans for the future; the teachers, too, have very kindly promised their help. This will be very useful to you, as they have great opportunities of finding out the sort of work at which the child will be happiest and do best.

We are also hoping that the care committee will be able to arrange for meetings of parents, when the different trades can be discussed and questions asked.

Everyone realizes that the way a child starts on its working life will settle its whole career, and that the time is the most important in its whole life. Unless a child

[1] A list of exchanges follows with the hours when open.

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starts at the work for which it is best suited from the point of view of health, character, and ability, it will suffer throughout its life, and will be deprived of a real chance of success. Unless a child begins to learn a trade young, it will never learn it well. It is to help those parents who realize this, and to arouse those few who do not yet realize it, that we are starting this scheme, and we hope very much that you will support it in every way you can.

VI. GLASGOW.

Child-welfare activities in Scotland have for years enjoyed the advantage of the interest of women's organizations. The Scottish council for women's trades has been for a long time studying the various occupations open to girls. In its various branches have centered some of the most interesting guidance activities of Scotland. Perhaps the one person above all others to whom credit is due as the prime inspiration of this service, not only in Scotland but in England as well, is Mrs. Ogilvie Gordon, of Aberdeen. For nearly a decade Mrs. Gordon has been pioneering in what she calls "educational information and employment bureaus." In March, 1904, Mrs. Gordon, in a Glasgow lecture, suggested that school boards establish bureaus for the purpose of guiding boys and girls into suitable employments on leaving school and supervising their careers, so far as possible.

Her handbook of employments for the use of boys and girls, published in 1908 and prepared with the assistance of expert social workers in Glasgow, Edinburgh, Dundee, and other cities, has been the model for similar publications in other countries.

As has already been indicated, the Choice of Employment Act is operative only in England and Wales. The education act of Scotland, 1908, prepares the way for vocational advisory services in the Scotch school boards. With the establishment of labor exchanges in Scotland there has been an effort to work out a cooperative scheme between the Scotch Education Department and the Board of Trade, similar to the English plan.

The education (Scotland) act, 1908, which became operative on January 1, 1909, empowered school boards to maintain or combine with other bodies to maintain "any agency for collecting and distributing information as to employments open to children on leaving school." Thus it became possible for school boards to use, in their discretion, money from the school fund for this important purpose, and the Scotch Education Department has in two circulars, dated August 27, 1909, and August 10, 1910, respectively, impressed upon all Scottish boards the advisability of taking action. No special grant of money was, however, allotted for such purposes. It should be noted that the act refers to information as to employments.

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The phrase might or might not be held to cover the detailed work of registration for specific vacancies.

There is a juvenile employment advisory committee which represents the school board of Glasgow and the labor exchange. Probably the main feature of this committee's work, as it is of every other such committee in Scotland, is the effort to promote attendance at continuation classes of young workers between 14 and 17 years of age. The forms and reports from Glasgow are similar to those already printed and to the Edinburgh material which is given in full. Therefore the account of the Glasgow work will necessarily be brief.

An interesting catechism in manuscript has been prepared dealing with the work and the policies of the Glasgow advisory committee, and is worth printing.

ADVISORY COMMITTEE FOR JUVENILE EMPLOYMENT IN CONNECTION WITH THE GLASGOW AND DISTRICT LABOR EXCHANGES.

Summary of answers by subcommittees to chairman's questions.

QUESTIONS.	ANSWERS.
1. What is the object of interference by the Board of Trade labor exchanges on behalf of—	
(A) Young persons seeking employment?	(A) To assist young persons seeking employment to choose suitable employment and to give advice and assistance to the Board of Trade in this connection with respect to the management of the labor exchange.
(B) Persons seeking to employ young persons?	(B) To help employers to find suitable young persons whom they may employ.
(C) Young persons not seeking employment and who ought to be at work?	(C) To induce young people to seek employment and to help them to obtain it. It is suggested that the "aftercare" committees might undertake this function.
2. What is the number of young persons leaving school between 14 and 17, and arriving in the city from outside—	Regular information is furnished by the school board to the exchange of all young persons leaving school and the records of the exchange supply the answers to the three branches of this question in respect of children leaving elementary schools in Glasgow. Certain outside boards are also supplying this information.
(A) Who find employment for themselves?	
(B) Who apply to the labor exchange—	
(1) and find employment	
(2) but who fail to find employment or refuse employment offered?	
(C) Who do not find employment for themselves, and who do not apply to the exchange?	

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Summary of answers by subcommittees to chairman's questions—Continued.

QUESTIONS.	ANSWERS.
3. How far is interference possible or desirable in respect of—	
(A) Choice or retention of employment?	(A) Compulsion ruled out as neither possible nor desirable. Information should be given regarding good and bad employments and peaceful persuasion used to induce the choice and retention of good and the rejection of bad employments. It is considered that these furnishings do not fall within the scope of the officials of the labor exchange; that they fall within the scope of the advisory committee, but the committee is not at present in possession of sufficient knowledge to perform those functions. It is desirable to inform juveniles in every branch of employment of the future prospects in that employment.
(B) Preparation for industrial employment, specific or general?	(B) Cooperation with education authorities recommended for preparation for industrial employments whether specific or general. Observation of statistics recommended for the acquisition of the necessary experience.
(C) Securing an "opening"?	(C) The advisory committee might make inquiry as to openings in the colonies and other countries in addition to its present arrangements.
(D) Instructional facilities after employment?	(D) Cooperation with education authorities recommended.
(E) Physical conditions of employment?	(E) It is considered that in respect of young persons employed in factories and workshops they are sufficiently looked after by the factory inspectors. If it should be found that there are dangerous trades not scheduled under the factory acts information may be tendered to the home office so as to have the omissions rectified. The committee might consider the advisability of appointing medical inspectors to examine the physical conditions of young persons in employment. Occupations should be classified with special reference to the number of juveniles who can be absorbed on reaching maturity.
(F) Health during employment?	

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Summary of answers by subcommittees to chairman's questions—Continued.

QUESTIONS.	ANSWERS.
4. In cases where interference occurs, what are to be the channels of operation in respect of—	
(A) Cooperation with young persons?	(A) School managers acting through teachers and "aftercare" committees.
(B) Parents, guardians, education authority, and factory inspectors?	(B) The education authorities have shown their willingness to cooperate with the advisory and district committees.
(C) For children of idle and thriftless parents, orphans, paupers, defectives, etc.	(C) The cooperation of poor-law authorities, industrial schools, public-health authority, police, education authority, churches, charitable institutions, should be sought as occasion arises, e. g., the poor-law authorities should be consulted with regard to defectives, public-health authority informed with regard to insanitary residences, police authority should be asked to deal with any cases involving criminal misdemeanor.
5. How far is it desirable to employ voluntary assistance in dealing with the work of the exchange?	The employment of voluntary assistance is desirable so long as persons assisting are persons of skill and experience and are subject to the control or supervision of the advisory committee. The appointment of school committees is recommended.
6. In advising young persons with respect to educational arrangements from the point of view of the exchange what are the general lines to be followed? e. g., Are the young persons as a rule to follow "trade lines" or are they to seek development on lines distinctly removed from their daily occupations?	Young persons as a rule ought to follow the course of training in the principles of their occupation.
7. How far is it desirable to persist in the literary education of young persons who have failed to secure the merit or qualifying certificates?	The committee will be glad to have the school authorities consider this question.
8. What is to be the relation of the exchange to young persons, who having found employment, are compelled to attend continuation classes? What is to be the point of contact between the exchange and the education department, in respect of this and other matters?	This question has not been answered.

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Summary of answers by subcommittees to chairman's questions—Continued.

QUESTIONS.	ANSWERS.
9. To what extent are educational grants available for the training of young persons who have to work during their industrial training?	The committee is unaware of any grants directly available.
10. Are there any bursaries available for the assistance of young persons at work?	Yes. There are many, certain of them are detailed in the minutes. A list of available bursaries is recommended to be kept at the exchange.
11. What is to be the policy of the exchange in respect to "trade instruction?" Should the exchange endeavor to meet the deficiency in supply by securing by cooperation with education department instruction in trade work?	Yes.
12. How far is it desirable to consult the wishes of the employer in respect to education? Should the employer be asked to select the young persons and cooperate in their training from the time of selection of employment, or should the advisers of the young persons deal with the individuals more especially from the individual standpoint?	It is desirable to consult the employers in respect to matters of education.
13. Should the labor exchange organize an official inspection of young persons whose training is being carried out under the advice and supvision of the exchange?	Not answered.
14. What may be taken as a "general" classification of employments in the Glasgow district? e. g. (1) Directly productive industries. (2) Indirectly productive industries, such as transport of materials. (3) Occupations auxiliary to production and transport. (4) Distributive industries. (5) Clerical and commercial service. (6) Communal service. (7) Domestic service.	This question is answered by the census returns which have been specially prepared for the committee.

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Summary of answers by subcommittees to chairman's questions—Continued.

QUESTIONS.	ANSWERS.
15. Are there any employments which are suitable as temporary means of earning a livelihood during preparations for more permanent occupations?	Yes; but proper supervision is recommended while the young person is occupied in such employment.
16. Are there any employments which should be scheduled as unsuitable for young persons?	Yes.
17. What are the general lines on which the exchanges should proceed in distributing applicants to the various classes of employment, and how, and by whom are these lines to be applied to the individual applicants? e. g., Is it advantageous that the young person should follow an occupation similar to that of the parent?	Not answered.
18. Is the labor exchange to contemplate the provision of a supply of "unskilled labor" from the ranks of those who are under its guidance?	Not answered.
19. At what stage should differentiation of young persons in respect of their suitability for the various occupations be made?	At the stage of leaving school.
20. What should be the organic connection with employers, e. g., (1) In respect of young persons employed in "suitable" industrial work? (2) In public services of conveyance and transport? (3) In work which tends to prevent young persons from being suitably prepared for earning a livelihood after 17 years of age?	Not answered.
21. How are the remainder to be dealt with; i. e., those young persons who being willing and able to work fail to find suitable employment in their own district. Should they be encouraged to leave home to find employment? Should the exchange contemplate emigration?	If there is a surplus of labor of orphans and others whom it may be desirable to separate from their parents they might, as a general rule, be encouraged to emigrate under arrangements with colonial governments, but the sending of lads or girls from decent homes should not be encouraged.
22. What are the legal resources for dealing with young persons under clause 4 (C)?	The solicitors to the board of trade can be consulted as need arises.

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Summary of answers by subcommittees to chairman's questions—Continued.

QUESTIONS.	ANSWERS.
23. Do the advisory committee desire the service of a special commissioner to assist them in formulating a policy by making special inquiry into the conditions of employment, etc., in this district, and of the questions raised in connection with the initiation of the work of the committee?	Not at present; but the consideration of subjects proposed for the investigation by a commissioner should be considered.
24. What is the effect upon employment of "defectives" of the employers' liability and workmen's compensation acts?	The effect is a considerable reduction of opportunities for labor to either the mentally or physically defective.

A summary of the topics considered at 10 meetings of the advisory committee during the years 1911–12, will give a clear idea of its activities:

ADVISORY COMMITTEE FOR JUVENILE EMPLOYMENT IN CONNECTION WITH THE GLASGOW AND DISTRICT LABOR EXCHANGES.

June 8, 1911, to June 30, 1912.

(Ten meetings of the committee were held.)

Subjects.

Appointment of subcommittees.
Statistical statements and records.
Laws relating to education and employment of young persons.
Leaving cards.
Facilities at exchanges.
Arrangements with G. P. O.
Migration and emigration.
School committees.
Cooperation by Board of Trade solicitors secured.
Law publications secured.
Limitation of operations to juveniles who register at exchange.
Reports on methods of dealing with juveniles by school board.
Departmental committee on night work.
Correspondence with central exchange.
Census special report secured copy requisitioned for each member.
Cooperation with school boards.
Voluntary school committees and social and charitable agencies secured.
Twenty-four special questions by chairman considered, and, for the most part, answered.
Returns from school authorities classifying children leaving school and limitation of operations to those who register.
Influx of juveniles from outside areas.
Information to school authorities on employment.
Particulars of physique added to boys' records.
Cooperation of civic guilds.
Weekly issue of lists of vacancies to schools.
Cooperation with country boards.
Undesirability of casual employment as a permanent resort.
Conference with associations of employers, discussed and deferred.
District committees recommended.
Reports of school board operation regarding employment.
Attention of school authorities directed to labor exchange facilities.
Census returns of employments.
Handbooks of employments.
Application to trade societies for wage rates and hours recommended.

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Subjects—Continued.

Conference with school boards agreed upon, Partick Civic Guild and Boy Scouts invited to attend.
Preparation of information as to employments arranged.
Study of reasons for failure to obtain employment.
Suggestion of special offer to deal with failures.
Adoption of all cases of difficulty in finding employment after registration.
Investigation by visits and personal interviews on difficult cases.
Causes of difficulty encountered.
"Indifference."
"Poverty" physical and mental defects.
Cooperation with school authorities, poor law authorities, and charitable bodies considered.
Study of law relating to children.
Free postage of inquiries.

A sample of the records in the juvenile labor offices of Glasgow is here given because of the observations noted with reference to each applicant:

BOARD OF TRADE LABOR EXCHANGES.

ADVISORY COMMITTEE FOR JUVENILE EMPLOYMENT IN CONNECTION WITH THE GLASGOW AND DISTRICT LABOR EXCHANGES.

Statement as to juveniles who found employment in trades other than those for which they registered.

JANUARY 17, 191_

1 Reference number.	2 Age of applicant.	3 Occupation for which registered.	4 Occupation in which "placed."	5 Remarks.
		A.—BOYS.		
		1. Glasgow labor exchange.		
1	15	Apprentice tailor.....	Attendant in public baths.	Physically unfit for tailoring; fairly intelligent; desires to learn trade.
2	16	Bootmaker.....	Warehouse boy.....	No vacancies for trade desired.
3	15	Apprentice tinsmith..	Message boy (temporary).	Indifferent; was previously employed by relative.
4	15	Apprentice plumber...	Message boy (grocer)..	Indifferent; will call when age limit reached.
5	14	Apprentice brass finisher.	Message boy.....	Small of stature; poor physique; unsuitable for trade.
6	14	Apprentice tailor.....	Apprentice upholsterer	Jew; difficult to place in consequence.
7	16	.....do.....	.....do.....	Satisfied.
8	15	Apprenticeship (printer preferable).	Message boy, with a view to entering branch of engineering.	Superior applicant.
9	14	Message boy.....	Apprentice model maker.	
10	15	Warehouse boy.....	.....do.....	Do.
11	16	Indefinite.....	Apprentice sawyer....	Satisfactory.
12	16	.....do.....	Apprentice glazier....	Do.
13	16	Van boy.....	Spirit store.....	
14	14	Factory worker.....	Apprentice cork cutter.	
15	16	Warehouse boy.....	Apprentice tinsmith ..	
		2. Partick labor exchange.		
1	16	Apprentice plumber...	Message boy.....	Diminutive stature.
2	15	Apprentice fitter.....	Apprentice cooper....	Unsuitable for engineering trade.
3	16	Apprentice cooper....	Apprentice coach-painter.	Undecided, but now doing well.
4	16	Apprentice grocer.....	Apprentice coach trimmer.	Do.
5	14	Apprentice electrician.	Apprentice plumber..	By request of guardian.
6	15	Apprentice sheet-iron worker.	Handy lad in engineering shop.	Unsuitable for trade desired, as undersized.
7	16	Apprentice compositor	Message boy.....	Unsuitable; unintelligent.
8	15	Apprentice fitter.....	Van boy.....	Fairly suitable, but no opening at present; being kept in view.
9	15	.....do.....	.....do.....	Unsuitable; unsettled.
10	15	.....do.....	Message boy (until opening in desired trade).	Suitable.

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Statement as to juveniles who found employment in trades other than those for which they registered—Continued.

1 Reference number.	2 Age of applicant.	3 Occupation for which registered.	4 Occupation in which "placed."	5 Remarks.
		A.—BOYS—Continued.		
		3. Parkhead labor exchange.		
1	14	Apprentice tinsmith..	Van boy.....	No vacancies meantime.
2	15	Message boy.....	Hairdresser.....	
3	14	Van boy.....	Basket factory worker.	
4	14	.....do.....	Apprentice cooper.....	Do.
5	14	Apprentice engineer...	Bottle worker.....	
		4. Govan labor exchange.		
1	14	Office work.....	Apprentice sawyer....	
2	14	Message boy.....	.....do.....	
3	14	Helper in sawmill.....	Van boy.....	
		B.—GIRLS.		
		Glasgow labor exchange.		
1	16	Shop girl.....	Warehouse girl.....	
2	14	.....do.....	Hosiery machines.....	
3	16	General work.....	Restaurant.....	
4	16	.....do.....	Hotel worker.....	

VII. EDINBURGH.

The best known of all the advisory and placement schemes is probably that which has been developed in Edinburgh. The thorough articulation of the advisory, placement, and continuation school activities, all fortunately centered in one place, namely, in the offices of the Edinburgh School Board, has materially helped the work in that city. Able school officials and an excellent advisory committee have centered their energy for the past two years on the promotion of the central information and employment bureau. The Edinburgh plan deserves detailed consideration.

As the result of conferences with social workers, educators, and such women as Mrs. Ogilvie Gordon, the school board decided early in 1908 to establish a bureau for vocational assistance. In that year the Scotland act empowered the school boards to use money from the school fund. No special money was, however, allotted. Information was the main purpose of the bureau. The organizer of continuation classes, whose work had brought him for several years in close touch with employers, was placed in charge of the new bureau. The first effort of the organizer was to direct those who were leaving for work to the opportunities of the evening continuation classes. In 1910 the Board of Trade opened a labor exchange in Edinburgh. This at once placed two agencies in the field, with much danger of duplication of labor. The school board's bureau had for some time done work of placing young people with employers, and was in fact largely used by employers who had vacancies to fill.

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The problem of cooperation became a pressing one and was solved in a way apparently satisfactory to the interests concerned. A statement clearly defining the functions of the two agencies was then issued and deserves quotation. It is substantially as follows:

EDINBURGH SCHOOL BOARD.

Cooperation between the Educational Information and Employment Bureau and the Labor Exchange.

I. The question of the allocation of the duties and functions of these two organizations has been under consideration for some time; and the possibility of rivalry and overlapping of work has been clearly felt. It is therefore evident that some attempt should be made to arrive at a concordat by which the respective spheres of operation shall be defined. If the problem of registration be considered, it is plain that no solution will emerge unless the two bodies involved come to a specific agreement in the matter; and the employer and the parent have a right to expect that such solution be found at an early date. Two officers for juvenile registration in the same city would be very undesirable, and though strong arguments may be advanced on both sides, the public will expect that the balance of advantage should be ascertained and given effect to. A similar argument will apply to the other aspects of the work—advice to juveniles, promulgation of information as to the conditions of employment in the district, relation of juvenile labor to the system for further education. The need for a working arrangement is obvious both from the point of view of economy of public money and from that of healthy civic and industrial organization.

The problem is not a local one merely, though it arises at the moment from the conditions in Edinburgh. It is of national importance; for on the one hand labor exchanges exist throughout the country, and on the other, employment bureaus managed by the public educational authorities may, in a few years, be widely established under existing law in Scotland and proposed law in England and Wales. It is therefore desirable that a solution applicable to the whole country should be found, and this should be done at an early date before the authorities concerned commit themselves to steps which may have to be retraced. That Edinburgh may help toward this general solution is clear, if the fact that it was the first education authority in Scotland to establish a bureau be borne in mind. The actual experience of the working of such an organization in a city where a highly developed system for further education exists must necessarily be of great value. Further, it would be preferable that Edinburgh should propose a solution than that one should be imposed from either the Scotch education department or from the Board of Trade.

II. The problem of demarcation may be best considered if the functions of a juvenile employment organization are stated. These are briefly as follows:

1. Advice to juveniles as to the pursuits for which they are by ability, taste, character, and education suited.
2. Advice to juveniles as to the opportunities which exist in the various occupations.
3. Collection and promulgation of general information in regard to industrial conditions.
4. Registration, i. e., bringing into contact the employer with a specific position to to offer, and the juvenile suited for and desiring such a position.
5. The supervision, in certain cases, of the juvenile after he has obtained employment, so that he is induced to take advantage of all educational facilities pertinent to his work, and is advised as to the various steps in his industrial career.
6. The keeping of the system of further education in real touch with the industrial needs of the locality.

III. It will readily be admitted that in regard to Nos. 1, 5, and 6, the education authority should be the responsible body. All the special knowledge of the teachers

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is at the disposal of the education authority, the parents have looked to the schools and to the headmasters for advice and guidance during the school period of the juveniles, the further education of adolescents is closely related to their employment, and generally the education authority already possesses so much of the field that these further areas naturally fall in. In regard to No. 5, it may be specially remarked that many education authorities are now establishing systems of local care committees, which exercise a supervision over all the philanthropic work of the schools, and the board has under consideration the formation of such committees as a system of care committees for the feeding work. These committees are obviously in a strong position to continue, after the school period, that activity which they have exercised during the years of compulsory attendance. A committee dealing with only one school may become a repository of knowledge of all the conditions of the child population flowing through that school, and may unify all the beneficent activities which stream upon it. Supervision of after employment and advice as to educational opportunities would appropriately fall within the scope of action of these committees.

On the other hand, No. 3 (collection and promulgation of information in regard to industrial conditions), evidently should be the duty of the labor exchanges. So much of this work is already done in connection with adult labor, and the business is so largely a study of economic conditions, that the education authority would not be justified in attempting it.

It is in the case of Nos. 2 and 4 that doubt arises, and that, therefore, detrimental competition might occur. On No. 2 (advice to juveniles as to general conditions of employment) it might be argued for the education authority that it is in loco parentis, that the juvenile is in any case coming for advice on other subjects (e. g., No. 1), that it has a knowledge and control of the whole outflow of juvenile population, that because children form its special business it can give to them a regard that the labor exchange, concerned mainly with adults, never will; that it can make a special study of the problem of juvenile employment on a higher plane than a body whose success is mainly measured by its rapidity in filling vacancies and placing applicants; lastly, that the body already in possession of functions Nos. 1, 5, and 6 should, for reasons of organic unity of working, take the others.

For the labor exchange, it may be said that its peculiar function is knowledge of industrial conditions, that it can draw upon the material collected over a wide area, that it can promote healthy fluidity of labor, because it is part of a national organization; that the juvenile after all becomes the adult within at most four years, and that the separation of juvenile and adult must not, if the industrial system is to be continuous, be pressed too far. Reasoning similar to this will apply on both sides to the remaining function No. 4 (the question of registration), with this added, on the one side that the employers are already in close and sympathetic relation with the education authority through the continuation class system; and on the other, that they are already in close and sympathetic relation with the labor exchange through their demands for adult labor.

IV. The balance of argument in regard to No. 2 seems to lie with the education authority, especially if it is borne in mind that juvenile labor must not be considered merely as an economic asset to be moved wherever demand arises. It is probably well that juvenile labor should remain in its locality and under the influences of the home, the city, and the educational system which have brought it thus far. If this be admitted, the argument that the labor exchange is national and the education authority bureau local loses much of its significance; for the local survey then becomes sufficient for the end aimed at. In any case, it would be perfectly easy for the labor exchange to place all its collected information and considered conclusions at the disposal of the education authority.

No. 4 only remains, and here a compromise is suggested. Registration is preeminently the function of a labor exchange; but there is an advantage in keeping juvenile

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registration in a separate office from adult registration and in bringing a juvenile registration dealing with the whole outflow from the schools into close contact with the other parts of the work of the education authority's bureau. These points would be met if the registration clerk and machinery remained part of the organization of the labor exchange but were housed in the same office as that of the bureau. Close cooperation would thus be established; parent and employers would deal in one office with all the parts of the problem of juvenile employment, and yet the education authority on the one hand and the labor exchange on the other would each deal with that side of the work which was distinctively and naturally within its scope. This suggestion, due to Prof. Lodge, appears to lead to a satisfactory solution of this difficult and pressing problem.

In drawing up this memorandum careful consideration has been given to the special rules with regard to juvenile applicants published by the board of trade February 7, 1910, to the views of Mrs. Ogilvie Gordon ("Introduction to handbook of employments"), a pioneer in working out this problem, to the study of the subject by Mr. Frederic Keeling ("The labor exchange in relation to boy and girl labor"), and to the valuable data afforded by the actual operation of the Edinburgh Bureau.

The proposals in the foregoing memorandum were accepted by the Scotch Education Department and the Board of Trade and are now in successful operation. The items numbered 1, 2, and 3 were reserved for the school officials. The employment features were left to the labor exchange. Parents and children who come for advice and for situations report at school headquarters, where the organizer of continuation classes and exchange officer are on hand to render the service required. Under the 1908 act Scotch school boards may fix dates for leaving school. In Edinburgh children are permitted to leave to work only on the 1st of March, May, September, and December. The operation of the Edinburgh plan is as follows:

Several weeks before the next fixed date for leaving, each headmaster fills cards giving particulars of age, physical condition, ability, attainment, and employment desired, for all pupils who will leave. Each card also contains the opinion of the teacher as to the occupation for which the pupil is suited, notes as to proposed employment, suggestions for further education, and spaces for general remarks. These cards are sent in to the education officer, who files them in a cabinet.

Meanwhile the fixed date approaches. The parents of pupils leaving school are often invited to an evening meeting at the school. They are addressed by members of the board and by teachers. To these parents, and also to those who do not come to the meetings, a circular letter is sent.

The consequence is that a large number of boys and girls come to the board office to follow up the card. The candidate first goes to the exchange officer's room and receives his card stamped with the reference number of the occupation desired. He passes to the education officer's room and has a talk about his aims, his further education, and the suitability of the career for which he has expressed a prefer-

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ence. The parents are urged to be present at this interview, but unfortunately do not always respond. The boy or girl then passes back to the exchange officer's room, and is definitely registered as a candidate for a particular kind of employment. The cards of those who have made this personal application are separated from the others, and they receive priority in filling vacancies.

A circular letter is sent to employers informing them of the joint arrangement and requesting their cooperation. When the employer writes or telephones asking for candidates for a certain position, the register of personal applicants is first consulted. Details of the request and also of the candidates sent are entered on the employers' card. Beyond the two sets of cards (both of which are filled by the exchange officer, but are always open to inspection of the education officer) no other registers are kept.

Both the education officer and the exchange officer make systematic visits to employers, the former to study industrial conditions of the employees, and to gain ideas for improving the continuation classes; the latter to bring to the employers' notice the facilities for securing suitable workers through the exchange.

The following circulars are sent to parents and children:

EDINBURGH SCHOOL BOARD.

DEAR SIR OR MADAM: The members of the board desire to call your special attention to the steps which they are taking to guide and advise young people regarding their future careers in life, and to provide for them the systematic training on commercial or industrial lines that will best fit them for the occupation which they elect to follow.

(1) Educational Information and Employment Department.

The Education Department has recently pointed out that it has been matter of frequent complaint that through want of information or proper guidance children, on leaving school, are apt to take up casual employments, which, though remunerative for the moment, afford no real preparation for earning a living in later life. The temptation to put a child into the first opening that presents itself is often very great. Due regard is not always paid to the capacities of the boys and girls concerned, with the result that many take up work which affords no training and is without prospect, while many others are forced into trades or professions for which they are unsuited by temperament and education, and for which they consequently acquire a dislike. The result is a large amount of waste to the community at large and misery to the individuals concerned.

In order to cooperate with parents in putting an end to this state of matters, the board in 1908 established an educational information and employment bureau. In 1909 the Board of Trade set up in the city a labor exchange whose juvenile department was intended to perform related duties so far as the employment of young people is concerned. It was felt that in the interests of economy and effective industrial organization a scheme of cooperation was desirable. An arrangement was therefore arrived at between the Edinburgh School Board and the Board of Trade whereby the work of both departments is carried on jointly in the present office of the school board, and all persons above 14 and under 17 years of age are dealt with there. This arrangement is working with the utmost smoothness and to the satisfaction of all concerned.

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The new organization combines the functions of the educational information and employment bureau and of the juvenile branch of the labor exchange. Briefly these are as follows:

(1) To supply information with regard to the qualifications most required in the various occupations of the city, the rates of wages, and the conditions of employment.

(2) To give information about the technical and commercial continuation classes having relation to particular trades and industries.

(3) To advise parents regarding the occupations for which their sons and daughters are most fitted when they leave school.

(4) To keep a record of vacancies intimated by employers and to arrange for suitable candidates having an opportunity of applying for such vacancies.

The educational information and employment department (entrance 14 Cornwall Street) is open daily, from 10 a. m. to 4 p. m. (Saturday, 10 a. m. to 12.30 p. m.), free of charge, to parents and pupils wishing information and advice as to education or employment.

To suit the convenience of parents who can not call during the day, the educational information and employment department will be open from 7 to 9 on the following evenings in February and March: Monday, February 24, and Monday, March 3.

You are cordially invited to make use of the services of the department.

(2) Continuation Classes.

Boys and girls who have gone through the work of the day school soon forget much that they have learned if they have no opportunity of extending the knowledge which they have already gained. The board would therefore impress on parents the importance of their children joining a continuation school *as soon as possible after leaving the day school.*

As you are probably aware, children can now leave school only at certain fixed dates. In Edinburgh these are March 1, May 1, September 1, and December 1. In February of this year over 1,000 pupils may terminate their day-school career.

The close of the day-school course is probably the most critical period in the life of children. There is grave danger of educational and moral waste if they are suddenly set entirely free from discipline and instruction. Between the ages of 14 and 18 careful supervision and training are essential to the formation of character, the creation of a sense of personal and civic duty, and the production of skilled and efficient workmen. It is of the highest importance then that all parents should realize that there must be no break between the day school and the continuation school.

In order that the passage from the day school to the continuation school may be as easy as possible, the board have made arrangements for a short summer session of 11 weeks' duration in 10 of the continuation schools. The session will extend from Monday, April 7, 1913, to Thursday, July 3, 1913. There will be a fortnight's holiday in April. The fee will be 2s. 6d. (Boroughmuir and Royal High Schools 5s.), returnable to all who make 80 per cent of the possible attendances. The board trust that you will do your utmost to see that any of your family who are now about to leave the day school enroll in one or other of the summer classes. (For particulars see inclosed handbill.)

Your attention is directed to the special provision which is now being made by the board for giving in the continuation classes practical instruction having reference to the various crafts and industries in the city. In connection with the new supplementary school at Tynecastle, a number of workshops have been erected, in which over 500 apprentices are being taught the principles of their respective trades. In these workshops there is equipment for the instruction of plumbers, tinsmiths, engineers, patternmakers, brassfinishers, molders, builders, joiners, cabinetmakers, tailors, tailoresses, upholsterers, French polishers, and plasterers. The board hope to be able to make provision of a similar nature in other parts of the city as oppor-

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tunity occurs in connection with the building of new schools. For the benefit of apprentices in the south side of the city four temporary workshops have been opened in connection with St. Leonard's School for the practical instruction of tinsmiths, metal workers, tailors, upholsterers, and masons.

Details and advice regarding the courses of study most suited to prepare boys and girls for their prospective occupations may be had by parents or intending students on application to the director of the educational information and employment department at the school board offices. The head master of the day school will also be pleased to grant you an interview during the month of February regarding your child's future employment and education.

EDINBURGH SCHOOL BOARD.

EDUCATIONAL INFORMATION AND EMPLOYMENT DEPARTMENT.

Thoughts for a boy on choosing work.

1. Consider what you are best fitted for; ask your parents and your teacher what they think.
2. Think of the future. Many kinds of work done by boys, such as messengers, van or errand boys, end when a boy is 17 or 18, and then it is difficult for him to begin again. Many grown men are out of work who earned high wages when they were boys; but it was at work which led to nothing.
3. Learn a trade if you can get the chance. Think how good it is to know a trade at which you can get work in other parts of the country as well as where you live now.
4. Whilst you are a boy learn to work with your hands—that will make your brain strong. With clever hands and a strong brain you have a double chance in life.
5. Stick to your school till the last possible moment, and make good use of it. And "keep it up" by going to a continuation school when you leave the day school, or you will find, in a year or two, that you have forgotten much that you knew.
6. Remember that in the continuation schools you can receive instruction in courses of study directly related to the trade or business which you propose to learn, and that you can continue at a very moderate cost the advanced stages of these courses at the Heriot-Watt College or the College of Art.
7. If the work you take up does not suit you, or does not seem to lead to any hopeful future, stick to it till you get something really better. Do not wander from one work to another, but come back to your school and tell your teacher; he may be able to direct you to those who can advise you in choosing your next work more carefully. You will find nothing perfect; but a good fight and a hard one before you are 18 will make the rest of life more easy.
8. The educational information and employment department, 14 Cornwall Street, is open daily from 10 a. m. to 4 p. m. (Saturday, 10 a. m. to 12.30 p. m.), and on certain Monday evenings from 7 p. m. to 9 p. m. You can there obtain—free of charge—advice and information as to suitable employment and further education, and through the agency of the department you may obtain employment for which you are fitted.

Thoughts for a girl on leaving school.

1. Consider what you are best fitted for; ask your parents and your teacher what they think.
2. Choose healthy work; remember that domestic service offers food, home, and comfort as well as work and wages; that it is the training for the future home life of a woman; and that, with character and ability, it will command good wages in any part of the country.

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3. If you prefer a trade, choose one in which you will be likely to find employment anywhere and at any time, learn it thoroughly so that employers will value your services. Do not change from one thing to another without good reason.
4. Stick to your school to the last possible moment, and make good use of it; later on you will see, better than you do now, how much the school work has helped. And "keep it up" by going to a continuation school when you leave the day school.
5. Remember that in the continuation schools you can receive instruction in subjects which are directly related to the various occupations open to girls and young women, and also the domestic training which will enable you to discharge with intelligent interest the responsible practical duties of the home.
6. If the work you take up is not satisfactory, stick to it till you get something really better. In any case come back to the school and tell your teacher how you are getting on.
7. Be brave and cheerful in whatever work you choose. You will find nothing perfect; but perseverance and hard work during the first few years will make the rest of life more easy.
8. The educational information and employment department, 14 Cornwall Street, is open daily from 10 a. m. to 4 p. m. (Saturday 10 a. m. to 12.30 p. m.), and on Monday evenings from 7 p. m. to 9 p. m. You can there obtain—free of charge—advice and information as to suitable employment and further education, and through the agency of the department you may obtain employment for which you are fitted.

In the summer of 1910, before the Edinburgh plan had gone very far, the school board undertook a census of the employments open to minors. The report is worth reprinting, as it shows the range of industrial opportunities in the city, and suggests the type of further schooling required for advancement in the skilled occupations:

Occupations in respect of which more than 500 young workers were found.

	Boys.	Girls.
Helps at home	1	856
Dressmakers, etc	...	649
Clerks and clerkesses	699	489
Messengers	931	361
Shop assistants	105	578
Between 200 and 500 workers.		
Domestic servants	2	207
Engineers and pattern makers	244	...
Factory workers	100	297
Printers	176	147
Compositors	83	131
Bookfolders, etc	2	240
Tailors and tailoresses	92	238
Van boys, etc	213	...
Butchers	214	...
Grocers	205	...
Between 100 and 200 workers.		
Bakers and confectioners	116	19
Hosiery knitters	6	108
Laundry workers	5	169

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	Boys.	Girls.
Painters	124	...
Plumbers	113	...
Rubber workers	45	107
Stationers	54	63
Messengers, telegraph and G. P. O	150	1
Between 50 and 100 workers.		
Hairdressers	58	...
Joiners	76	...
Laborers	68	...
Machinists	...	55
Railway servants	88	...
Tinsmiths	50	...
Tobacco workers	1	51
Warehouse attendants	45	40
Drapers	55	21
Typists	...	86
Chemists and druggists	54	23
Blacksmiths	50	...
Bookbinders	39	33
Bottle makers and workers	89	...
Brass workers and finishers	50	...
Dairy workers	13	82
Electricians	56	...
Paper rulers, stampers, envelope makers	11	77
Upholsterers	28	25
Waiters	30	21

The remaining occupations, all employing less than 50 young workers, are as follows.

Bag makers	...	38
Boot and shoe makers	27	...
Box makers	7	29
Brewery workers	26	...
Builders, bricklayers, masons, etc	21	...
Cabinetmakers	29	...
Cap makers	...	40
Case makers	6	17
Coach builders, painters, trimmers, etc	22	...
Coopers	46	...
Dental mechanics	21	6
Engravers	21	...
Gardeners	36	...
Glass makers, workers, and blowers	18	2
Iron workers and molders	28	...
Jewelers	24	1
Lithographers	28	9
Miners	31	...
Packers	7	28
Page boys	32	...
Photographers	12	15
Shirt makers and cutters	1	20
Watchmakers	23	1
Booksellers	37	1

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	Boys.
Fruiterers	9
Hawkers	28
Ironmongers	28
Dentists	4
Draftsmen	18

All the Edinburgh schools have received copies of the occupat census, besides a series of booklets for boys and for girls. The handbook, entitled "Occupations for girls," is similar to that us Glasgow. A copy is sent to each girl approaching the leaving The boys' booklets thus far issued are: "How to become an engin "How to become a printer," and "How to enter the civil serv In the 20 or more pages of these booklets the following point covered:

1. List of industries, trades, and professions of the town or district, with nam chief employers.
2. Local demands for young workers in the various trades and industries.
3. Qualifications most required in the various occupations.
4. Conditions of apprenticeship for each trade, etc.
5. Beginner's weekly wage.
6. Minimum and maximum rates of remuneration.
7. Possibilities of promotion, etc.
8. Statements regarding further educational courses and the requirement employers.

Follow-up work, as it is known in Birmingham and London, d not exist in Edinburgh, but the interest of the advisory council in work is as great as that of any committee. The function of t council is that of advising the board as to matters connected with training required for the occupations open to Edinburgh boys a girls, the conditions of employment, and general matters of sch efficiency. There are sectional committees of the council compo of employers and workers, with an educator or other specially qualif persons added.

The following is a list of the sectional committees:

1. Printing.
2. Engineering.
3. Brass finishers' work (Tynecastle).
4. Tinsmiths' work (Tynecastle).
5. Tinsmiths' work (St. Leonard's).
6. Molders' work.
7. Building construction.
8. Plumbers' work.
9. Plasterers' work.
10. Carpentry and joinery.
11. Cabinetmaking.
12. Upholstery.
13. French polishing.
14. Baking and confectionery.
15. Tailors' work.
16. Hairdressers' work.
17. Art.
18. English.
19. Commercial subjects.
20. Domestic subjects.
21. Trade dressmaking.
22. Physical exercises.

There are members on these sectional committees who have be exceptionally active in the work. The visits of these committees

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The continuation classes have resulted in excellent suggestions, while an important by-product has been to educate public opinion to a remarkable degree in favor of the city's vocational enterprises. It may be fairly questioned, however, if there has not been overorganization, and a rather unwieldy advisory agency established. Without a much greater office force it is impossible to vitalize so extensive a committee system. Nevertheless, the reports of some of these sectional committees show good work done, and selections are here given from a few:

Report by engineering sectional committee.

Mathematics and drawing.

There seems to be a general feeling amongst the teachers that the scheme of instruction in engineering drawing and mathematics might be improved. For example, in drawing, simple machine details are mentioned in the first-year syllabus, but bolts, nuts, and similar details are deferred until the second year. The geometrical drawing of the first year might be more closely related to engineering drawing, and a little solid geometry might be included in the second year engineering drawing.

The syllabus for mathematics is rather vague as to the amount of work to be covered, and no mention is made of graphs in the second year.

Workshop practice.

The first-year's syllabus is intended evidently for boys who have not yet started, or are just beginning, their apprenticeship, and for such it should be useful, as it will make them familiar with the ordinary engineering tools. The second year's work, however, might be of a more advanced character, as it must be remembered that if a boy is in an engineering workshop his training there continues during the summer of six months.

A greater interest might be taken in workshop practice if students had a more definite object in their work, such as the making of parts suitable as drawing models. Thus it was noticed in some of the schools that examples of lewis and rag bolts supplied to the drawing classes were not of the usual pattern, and even the making of simple parts of this kind would be beneficial to young students if forged, machined, and well finished exactly to sizes given on a fully dimensioned drawing, perhaps previously made by the same student. The necessity of having the holes in the plates of a riveted joint absolutely fair and free from ragged edges might be brought home to students by purposely putting the holes out of line and then sawing through the joint after riveting to show the distortion of the rivet.

More advanced work might be given, such as the making of simple plummer blocks—say for a 2-inch shaft—right-angled stop valves, 1-inch to 2-inch bore; but the time which any student can spend at a turning lathe is very limited, and each piece of work should be such that it can be made completely in a session by a small group of not more than three students.

High-class tools likely to be of subsequent use to students might also be made in the workshop. Thus a built-up steel square provides excellent practice in filing, scraping, and riveting.

Polished steel bars of suitable sizes can be obtained now for very little more than the cost of raw material, and thus the student could acquire a valuable tool for a few pence.

The time available for this work is about 25 nights of 2 hours each session. In order that a class of 25 students, working in groups of two when at the lathe or forge,

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should have 13 nights at fitting, 10 nights at turning, and 2 nights at forge-work, 5 lathes would be required. There are at present 4 lathes, but 2 of them have not slide rests, and are only suitable for hand turning. As there are generally more than 25 students in the workshop, the time which each individual student gets at turning just now is probably not much more than 2 hours each session. More lathes are therefore required.

The question of workshop instruction for young journeymen or boys well on in their apprenticeship who are mentally unable, or who have no ambition, to become anything but artisans, is one which in the first place might be referred to the Heriot-Watt College. It is evident that a different course of instruction is necessary for such students, and an attempt might be made to obviate the effects of specialization in their daily work.

For ambitious boys, on the other hand, mathematics and drawing are more important than workshop practice as a preparation for the theoretical classes of the Heriot-Watt College, and workshop practice, therefore, should be optional in order that such boys may have the same amount of time at drawing in all schools.

Since the above notes were written, the committee have learned that additional engineering workshops will be erected during the summer months.

Report by molders' work sectional committee.

The committee met at Tynecastle School and visited both the molding shop and the pattern shop and found an intelligent interest being taken in the work by a large number of boys.

The molding shop is not yet equipped with a furnace, consequently the instruction in molding is still, from a practical point of view, almost useless. The committee understand that it has been decided to erect a cupola as suggested by them.

One point that greatly commended itself to the committee was the way the pattern-making and the molding classes interchanged, the committee being of opinion that this was the best means of making both trades understand common difficulties.

Report by tinsmiths' sectional committee (Tynecastle).

There is one recommendation we should like to make, viz, that the hours be altered. As most of the boys are free at 5 o'clock at night, and require to be at work by 6 o'clock in the morning, they ought to be in bed at 10 o'clock if health is to be considered. Therefore we recommend that the closing hour should not be later than 9.15 p. m.

Report by plumbers' work sectional committee.

The committee visited Leith Walk, Tynecastle, and South Bridge classes. They were pleased to note the interest which the students took in their work, and also the good attendance at both theoretical and practical classes. The committee desire to make the following recommendation: That at the practical classes the students be allowed to work with larger sizes of pipes—say 4 inches—for bending work.

Report by carpentry and joinery sectional committee.

This committee have paid one visit to each of the classes in South Bridge, Stockbridge, Bruntsfield, and Tynecastle schools. We desire to express our appreciation of the efforts made by the board to give effect to some of the suggestions made in previous reports, and venture to hope that the others may not be lost sight of, especially those contained in the three concluding paragraphs of last year's report.

The increasing interest of the lads attending these classes points to the conclusion that in the near future the board will be faced with the necessity of still further increasing the accommodation for them. Generally, we are of opinion that the prog-

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ree of the pupils is commensurate with the conditions and possibilities of the instruction given, but we are also of opinion that the results might be greatly improved by the introduction—

(1) Of some method of grading the pupils.

(2) Of some more uniform method of imparting the necessary instruction.

(3) Of affording opportunities, to the higher grades, of displaying and developing originality of design and construction.

The necessity for giving effect to the first of these will be evident if we state that an elementary teacher who was called upon to teach in the same room, and at the same time, classes with three, four, five, and six pupils, would be exactly in the same position under that arrangement as the teachers of the carpentry and joinery classes to-day.

In regard to the second, if a more uniform system of teaching, based probably on an approved textbook embodying Scottish as well as English methods and names, were adopted, comparison between the different classes would be much easier, and the possibility of introducing examinations in practical work would be at once established.

In regard to the third recommendation, the committee early in the session were impressed with the necessity of encouraging some originality in design and construction in the higher grades, and toward that end suggested to the board that in each of the classes two or more of the more advanced lads should be asked to design and execute to sizes given some piece of work, for permanent use in some of the schools presently under construction for the board. It is thought that if this were done the interest of the lads in their work would be stimulated, and a healthy emulation among the schools set up. This could only be taken in hand, of course, at the beginning of a session.

In regard to the question of examinations in practical work, this committee are of opinion—

(1) That an examination in practical work for each trade should be held at or near the close of each session.

(2) That this to be effective must be preceded by a system of grading of pupils, and the introduction of a more uniform system of teaching in the various classes.

(3) That the tests should be the same for each parallel grade in all the classes.

(4) That these tests should be set by the class teachers in each trade, collectively, and in consultation with the sectional committee.

(5) That each sectional committee, with or without expert assistance, should judge and classify results.

(6) That all the boys taking part in these examinations should have the examination day off work, the examination to be held during the day in preference to in the evening.

Report by upholstery sectional committee.

The committee, having on various occasions visited the workshops at Stockbridge and Tynecastle, desire to express their satisfaction with the work done by the classes, the pupils being most attentive, and the progress satisfactory.

Both teachers are most enthusiastic, and do their utmost to make the work interesting and instructive.

Some of the frames used for upholstery were quite unsatisfactory, and the committee think that wherever possible, all frames and other materials should be submitted, before being purchased, to the inspection of one or more members of the advisory council. It is quite impossible for boys, or men either, to do good work on bad frames.

In consequence of the different stages at which the boys are, it is difficult when classes are large for teachers to give the practical supervision which is necessary to

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each individual member. We would therefore suggest that whenever the class exceeds 10 boys an assistant teacher be provided.

Report by baking and confectionery sectional committee.

The committee beg to report that during the session they have visited the classes presently conducted at the Fountainbridge Center, and have been present at the lectures and practical lessons. It is a matter of sincere regret to find that the number of pupils on the roll, and hence in attendance, shows a falling off as compared with previous years. Probably the solution is due, and may be traced, to the new regulations now in force and more still to the want of a properly equipped bakery workshop, such as is provided for and is now enjoyed by nearly all other branches of industry, notably a kindred one—cookery. Bakery and confectionery are not of less importance to the general community. It is our duty to direct attention to this fact, to remind the board of the recommendation approved last year, whereby they agreed to erect a bakery and class rooms, laboratory, etc., at Fountainbridge, and again to express the hope that this will soon be given effect to. Mr. Norman Robinson, Greenock, has proved himself a most capable and highly efficient lecturer, and has thus fully justified all expectations. The teachers, baking and confectionery, in their respective departments, continue to carry on their work in an efficient manner.

The committee are in favor of holding examinations both in written and practical work.

Further, they are of opinion that in the erection and equipment of the bakery, and in the selection of suitable ovens and other necessaries, they having practical experience and skill in these matters, might be consulted. The practical knowledge of the committee should prove both helpful and useful to the board or the committee dealing with the question.

Report by Trade Dressmaking Sectional Committee.

The members of the sectional committee have during the session visited Boroughmuir, Bruntsfield, Tynecastle, and Sciennes evening schools. Bruntsfield School is the only school in which at present there is a class which might come under the description of a trade dressmaking class, viz, a trade blouse-making class.

The committee carefully examined the work done by the blouse-making class and the system of teaching, and were well satisfied; but blouse making is a very small part of trade dressmaking, and the committee think that the other branches of the business ought to be included in the syllabus.

The members of the committee on their visit took the opportunity of inspecting the work of certain other classes to some extent allied to trade dressmaking, particularly domestic dressmaking and trade tailoring. The system of teaching domestic dressmaking did not appeal to the committtee as being suitable for the trade class, but they considered that the method of conducting the trade tailoring classes makes these of much benefit both to the pupils and to the trade, and they are of opinion that trade dressmaking classes should be conducted on similar lines.

The committee would therefore respectfully recommend that the classes for trade dressmaking should be in three sections—(1) bodice making, (2) skirt making, and (3) sleeve making. Pupils engaged in business as bodice makers would take the courses in skirt making and sleeve making, and pupils whose business is skirt making or sleeve making would take bodice making and sleeve making, or bodice making and skirt making, as the case may be. In this way, assuming that the pupils had all an experience during the day in one or other of the branches of the business, they would only require to attend two sessions to acquire a knowledge of the other branches, but the committee think that in addition to what may be called the elementary classes there ought also to be an advanced class, which a pupil would take during a third session,

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and which would include all three branches in their practical application. A pupil in the third session ought to be qualified to make a complete afternoon or evening dress, should at the same time be able to acquire a general knowledge of practical fitting, and should be able to pass on to a class such as is conducted in Gilmore Place School in dress design.

The committee would further like to suggest that the teachers chosen for each section of the trade should be qualified assistants, with experience of the special branches, in the business houses in the city. The committee would be glad to be of assistance to the board in the selection of suitable tachers.

Report by the Commercial Subjects Sectional Committee.

The commercial subjects sectional committee have this year visited the three commercial institutes—Sciennes, where only first year's work of the commercial curriculum is carried on, Boroughmuir, and the Royal High School.

The committee in their report last year expressed their dissatisfaction with the present scheme of coordination between Sciennes and Boroughmuir commercial institutes. By this scheme pupils take the first year of their subject in Sciennes, and are then required to proceed to Boroughmuir for their second and succeeding years. This simply paves the way for what is a very serious and grave matter in connection with continuation class education, viz, the enormous leakage of pupils that is yearly taking place after one year's attendance at the classes. From an economic point of view it means considerable waste of money and energy when something like 50 per cent of students qualifying in the first year of the subject do not return. Out of the 200 pupils enrolled in Sciennes last year in the commercial course, 126 could not be traced as having returned for the second year of their course.

For this very serious state of affairs a remedy must be found. Perhaps one way would be to grant certificates to those students only who had completed the full course of two or three years; or to repay the fees only to such as complete that course. In any case something ought to be done to minimize this evil and waste.

The committee notice, with gratification, that the number of students taking commercial English is on the increase, as this subject, along with arithmetic, must at all times be the basis of a good sound commercial education.

The committee again this year, as last, found that unfortunately it is still necessary to devote a considerable amount of valuable time in the commercial English classes to spelling. How this weakness arises is difficult to understand, as students can not be admitted to a first year of the commercial course unless they are in possession of the merit certificate, or a certificate of attendance at a higher grade school, and one has every right to expect better things from pupils possessing either of these qualifications—requiring in the one case a primary school education extending to 7 or 8 years, and in the other, a primary and intermediate education extending to 9 or 10 years.

The committee would like to see arithmetic taught to the students in a more interesting way. At present it is treated too much as a subject by itself, rather than as a subject correlated to the daily requirements of the students. If it were made more practical, greater interest would be taken in its study by the pupils.

The committee notice that the Scottish phonographic association have acquiesced in their last year's suggestion to base the examination in shorthand at 60 words a minute on purely business matter. No doubt this action will prove a more satisfactory test to the students, who are chiefly engaged in commercial work.

The committee would again urge the necessity of the school board being the authority for junior commercial education, and taking powers to grant the junior commercial certificate, without the one year's attendance at the Heriot-Watt College. This certificate would also include the subjects of typewriting and shorthand. At present there is no certificate for typewriting. A special examining body coopted from the various com-

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mercial societies established in the city might be the examining body for the granting of this certificate.

If such a certificate could be granted by the school board it would mean that more enthusiasm and zeal would be evinced by the students, not only to finish the junior course in the commercial institutes, but to proceed to the Heriot-Watt College with a view to earn the senior commercial certificate. With this double qualification in their possession, there is no doubt that the successful students would be better equipped for securing good appointments in commerce.

The main effort of the advisory council is directed toward the promotion of attendance at the continuation classes and at other institutions in which Edinburgh is fortunate. The aggressive policy followed for the past two years with reference to the evening instruction of all working minors has resulted in the enrollment of a large number of young people. Aided by the law of 1908, section 10 of which permits the framing of rules for compulsory attendance at evening school, it is quite likely that Edinburgh will in time enroll all working minors in evening classes, just as Glasgow is attempting to do. When this stage is reached it is to be hoped that the energy and public interest thus far manifested in this city for the evening instruction of working children will be devoted to the raising of the school age and to the daylight rather than the evening instruction of at least those children between 14 and 16. The present arrangements take more out of the growing children than the community should be willing to permit. No 14 or 15 year old boy can be safely confined to about 10 hours of office, factory, or other work and for 2 hours or more at mental labor in a classroom.

The importance of this matter has been recognized in Edinburgh with reference to the teaching staff. The severe strain on continuation school teachers who have other work to do throughout the day has led the school board to decide that the head teachers of the largest schools shall be relieved half time from day-school work on such days as they are engaged in the evening school. Some such safeguard might well be applied to the growing adolescent in wage earning at this period of peculiar moral and physical strain.

The relation of the continuation classes to the guidance and placement work in Edinburgh is so close that some of the circulars dealing with the continuation classes are here given.

EDINBURGH SCHOOL BOARD.

EVENING CONTINUATION CLASSES.

DEAR SIR OR MADAM: By the Education (Scotland) Act of 1908 there has been laid upon school boards a definite responsibility for the further education of adolescents. It is now the duty of a school board to make suitable provision in continuation classes for the instruction of young persons above the age of 14 years with reference to the crafts and industries practiced in the district. Power has also been given to school boards to require the attendance at such classes of all young persons between the ages

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of 14 and 17. The development of a system of continuation-class instruction adapted to the needs of young people, to the convenience of employers, and to the requirements of local trades and industries is now engaging the attention of educational authorities throughout the country.

During the last five years there has gradually been established in Edinburgh between employers and the school board a system of cooperation which has enormously increased the attendance at the continuation schools, and which has enabled the board to organize more completely the systematic and scientific training required by those who have entered upon an occupation.

Your special attention is drawn to the following figures, which are conclusive testimony to the success which has attended the system of cooperation set up between the school board and the employers of the city in 1906 and extended during the following years:

Sessions.	Enrollment.	Increase.	Per cent of increase.
1905–6	3,722	228	.....
1906–7	4,516	794	21.3
1907–8	6,477	1,961	43.4
1908–9	7,621	1,144	17.6
1909–10	8,789	1,168	15.3
1910–11	10,099	1,310	14.9
1911–12	10,755	656	6.4

During the last six years the enrollment has increased by 189 per cent. It is gratifying to learn that the methods by which this success has been achieved have commended themselves to the highest educational authority, and that other parts of the country are now adopting the same policy modified to suit their particular circumstances.

There are still, however, in Edinburgh almost 6,000 young persons between the ages of 14 and 17 who are receiving no instruction either in subjects of general education or in the technical principles of their daily occupation.

In their annual reports on the work of continuation classes the Scotch Education Department refer in the following terms to the progress made in Edinburgh, viz:

Good organization, the cooperation of the education authority with employers, and a public opinion increasingly alive to the importance and necessity of the work have combined to secure a very rapid development of the continuation-class system in Edinburgh. The Edinburgh school board maintains a position in the front rank of enlightened educational authorities by the unstinted exertion and enterprise with which it has grappled with the very difficult problem of continued education.

Without the whole-hearted cooperation of the employers in the city the achievements of the past six years would have been impossible. The board desire to express their appreciation of the important part which employers have taken in increasing the enrollment and improving the efficiency of the classes, and to appeal to them for a continuance of their valuable assistance.

Among the ways in which employers can assist the board at this time the following two may be mentioned:

1. Guarantee of fees of employees.—Last year 124 employers became surety for the fees of their young workers. A summary of the attendance and progress of those students show that the guarantee system is attended with great success, and that the guarantor incurs little or no financial loss. In the event of your deciding to adopt the system, kindly fill up and send the inclosed form to Mr. John Stewart, deputy clerk to the Edinburgh School Board, Castle Terrace. At the end of the session you will be asked to pay the fees only of those who fail to make 80 per cent of the possible number of attendances, and of those who, being over 20 years of age, enroll in one of the centers for adults (Broughton H. G., Gilmore Place, and Warrender Park Schools).

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2. Meetings of work people.—In September, 1911, 125 such meetings were held, with the result that interest in the continuation classes was greatly stimulated. It will be a great favor if you grant permission for a member of the board to address your employees.

In conclusion, the special attention of employers is directed to the efforts of the board to provide proper facilities for elementary trade instruction. During last winter session over 400 apprentices received a certain amount of practical training in the 18 workshops which have been erected at Tynecastle. It is the intention of the board to build in other districts such workshops as appear to be required for the instruction of young persons engaged in the local industries.

The winter session of the classes begins on Monday, September 23, but students should enroll on Thursday, September 19, or on Friday, September 20.

EDUCATIONAL INFORMATION AND EMPLOYMENT DEPARTMENT.

The bureau established by the board in September, 1909, has been largely made use of by the employers in the city. Since its opening vacancies have been intimated to the bureau by 2,826 individual employers, and 4,565 boys and girls have been enabled to enter upon occupations for which they appear fitted.

No fee is charged for utilizing the services of the bureau.

To EMPLOYERS IN EDINBURGH.

EDINBURGH SCHOOL BOARD.

CONTINUATION CLASSES.

DEAR SIR: The school board desire to thank the various trades-unions of the city for the keen interest which they have shown in the work of the continuation classes and of the educational information and employment department, and to again ask their cooperation and assistance in the fuller development of these two agencies.

By the Education (Scotland) Act of 1908 there has been laid upon school boards the duty of making suitable provision in continuation classes for the further instruction of young persons above the age of 14 years with reference to the crafts and industries practiced in the district. Power has also been given to school boards to require the attendance at such classes of all young persons between the ages of 14 and 17 years.

During the last six years the Edinburgh school board have been endeavoring, with the assistance of employers and workers, to develop a system of continuation class instruction adapted to the requirements of the trades and industries of the city. They are pleased to be able to announce that arrangements have been made for carrying on the following trade and technical courses during the coming winter session, viz:

1. Engineering.
2. Physics.
3. Brass finishers' work.
4. Tinsmiths' work.
5. Molders' work.
6. Mining.
7. Building.
8. Carpentry and joinery.
9. Plumbers' work.
10. Gas lighting and appliances.
11. Plaster work.
12. Cabinetmaking.
13. Upholstery.
14. French polishing.
15. Course for compositors and printers.
16. Printing machinemen's course.
17. Bookbinding.
18. Breadbaking.
19. Confectionery.
20. Flour-millers' work.
21. Tailors' work.
22. Tailoresses' work.
23. Hairdressers' work.
24. Agricultural science.

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The special attention of the members of the various trade societies is directed to the fully equipped workshops at Tynecastle, where practical instruction is given by qualified workmen commanding the confidence of the trades concerned to apprentice engineers, brassfinishers, tinsmiths, molders, carpenters, cabinetmakers, upholsterers, French polishers, builders, plumbers, plasterers, tailors, and tailoresses. The board hope to have ready within a year or so, in the northern and southern districts of the city, such workshop facilities as appear to be required for the instruction of apprentices in the local industries.

The organization of general knowledge courses for those who intend to enter certain professions or the civil service, but who are not in a position to pay the fees for private classes, will no doubt be of much interest to your members.

Though the enrollment in the continuation classes has risen from 3,494 in 1905 to 10,755 in 1912, there are still in Edinburgh almost 6,000 young persons between the ages of 14 and 17 years who are not in attendance at either day or evening classes. It is now the endeavor of the school board to bring as many as possible of these within the influence of the continuation classes, and the board feel that the secretaries of the various trades-unions can lend most valuable help in making the classes known, and in encouraging the lads and girls, the young men and young women connected with their societies, to attend one or other of the schools for the purpose of completing their general education, or of specializing in that course of study which bears directly upon the occupation in which they are engaged.

Full information regarding the classes can be had from the prospectus, copies of which may be obtained free of charge from the janitors of the various day schools, or at the school board offices, Castle Terrace. Parents or intending students requiring advice or guidance in regard to the choice of a course of study should consult the organizer of the classes—Mr. David M'Nally—who will be in attendance at the Educational Information and Employment Bureau, Cornwall Street, on the evenings of Monday, September 9, and Tuesday, September 17.

Special attention is directed to the fact that the fee of 5s. (Milton House, North Canongate, and Towerbank 2s. 6d.) for the session is returned to students making 80 per cent of the possible attendances, except in the case of those over 20 years attending the three special centers for adults—Broughton H. G., Gilmore Place, and Warrender Park Schools.

The schools reopen on Monday, September 23, and pupils can be enrolled then, or on the evenings of Thursday and Friday, September 19 and 20, from 8 to 9.30 o'clock.

We shall be favored by your bringing this circular and the inclosed prospectus before the first meeting of your society. We are sure the members are fully convinced of the necessity for proper supervision and guidance of young persons between the ages of 14 and 17. All will agree that these are the years when much may be done toward the formation of right habits of life and a true sense of the duty of the individual to himself, to his fellow-workmen, to his employer, to his city, and to his country.

To Secretaries of Trades-Unions in Edinburgh.

Edinburgh School Board.

CONTINUATION CLASSES.

Reverend Sir: On behalf of the Edinburgh school board we desire to thank you for the interest which you have displayed in former years in the evening continuation schools. We shall be much pleased if you can continue to give your assistance in making these classes known.

It will be a great favor if, from your pulpit on Sundays, the 15th and 22d instant, you will intimate that the evening schools for young men and young women will

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reopen on Monday, the 23d instant, and at the same time urge the young people of your congregation to take advantage of these opportunities for improvement.

It has been pointed out by the Scotch education department that school boards in industrial districts have no more important or pressing task before them than the fostering by all means in their power of a movement for the better use of the years of adolescence as a preparation for adult life. To accomplish this great end school boards must join hands with every agency having for its object the industrial efficiency and social well-being of the community. The Edinburgh school board therefore appeal with confidence to the clergymen of the city to aid them in their efforts to stop the educational and moral waste consequent upon neglect to use properly the all-important years between the ages of 14 and 18. Careful supervision and training during these years are required for the formation of character and for the creation of a sense of personal and civic duty.

In the continuation schools much may be done to fit our young men and women for their duties as citizens and for their occupations in life, and generally to counteract the evil influences so prevalent in crowded cities.

You are probably aware that it is now the duty of a school board to make suitable provision in continuation classes for the further instruction of young persons above the age of 14 with reference to the crafts and industries practiced in the district. The Edinburgh school board have now made arrangements for giving instruction bearing upon nearly all the local trades and industries. Eighteen workshops have been erected at Tynecastle for the practical training of apprentices in the western districts, and the board hope to have within a year similar facilities in the north and south of the city.

Though the enrollment at the continuation classes has risen during the last seven years from 3,494 to 10,755, there are still in Edinburgh almost 6,000 young persons between the ages of 14 and 17 who are receiving no systematic training. The board are now endeavoring to reach these, and they make an earnest appeal for your assistance.

Inclosed is a general handbill and a copy of the prospectus, from which you will see that, in addition to the ordinary classes for young men and young women, special classes are to be held at Broughton H. G. School, Gilmore Place School, and Warrender Park School for adults over 20 years of age.

Thanking you in anticipation for your kind help in this matter.

To ALL CLERGYMEN IN EDINBURGH.

The directors' statement regarding the work of the educational information and employment bureau to March, 1913, is as follows:

EDINBURGH SCHOOL BOARD.

Director's statement regarding the work of the Educational Information and Employment Bureau.

	For 4 weeks ending Mar. 14, 1913.	Total since Sept. 1, 1912.	Total since opening, Sept. 6, 1909.
Number of pupils reported as leaving school at or since summer holidays 1909, and concerning whom bureau cards have been received	643	1,363	12,435
Number of above who have stated their intention to enroll in continuation classes	438	891	7,724
Number of above 12,435 who have made personal application to the bureau for employment	185	1,321	6,712
Number of above 6,712 who have entered on an occupation	202	1,352	6,075

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Kinds of employment above 6,075 are engaged in.

Apprenticed.	For 4 weeks ending Mar. 14, 1913.	Total since Sept. 6, 1909.	Apprenticed.	For 4 weeks ending Mar. 14, 1913.	Total since Sept. 6, 1909.
Printing and allied trades	18	699	Embroiderers	.....	5
Engineers	15	318	Saddlers	.....	5
Domestic servants	14	311	Hosiery makers	.....	5
Dressmakers	7	233	Plasters	.....	5
Tailoresses	10	113	Gilders and picture framers	.....	5
Plumbers	5	81	Machinists	.....	4
Tailors	3	74	Surveyors	.....	4
Stationers	.....	71	Art designers	.....	4
Joiners	2	67	Piano tuners	.....	3
Brass finishers	1	62	Iron molders	.....	2
Grocers	.....	53	Pattern makers	.....	2
Tinsmiths	2	52	Portmanteau makers	.....	2
Draughtsmen	.....	51	Organ builders	.....	2
Painters	2	51	Barbers and hairdressers	.....	2
Bakers and confectioners	2	49	Glass cutters	1	2
Electricians	.....	47	Mantle makers	.....	1
Butchers	1	45	Typewriter mechanics	.....	1
Drapers and clothiers	.....	41	French polisher	1	1
Milliners	1	41		110	2,985
Blacksmiths	1	38			
Upholsterers	1	38			
Laundresses	3	37	Office work:		
Instrument makers	1	35	General business houses	10	913
Chemists	.....	31	Legal offices	7	85
Booksellers	1	29	Insurance offices	.....	4
Photographers	.....	28	Public or municipal offices	.....	4
Ironmongers	.....	26	Railway service	.....	3
Cabinetmakers	.....	26	Banks	.....	.....
Watchmakers and jewelers	2	26		17	1,009
Gunsmiths	.....	18			
Masons	1	17			
Boxmakers	7	13	Girl probationers	7	7
Gardeners	.....	12	Telephone operators	2	2
Wireworkers	.....	12	Telegraph messengers	17	92
Boot manufacturers	.....	11	Shop assistants	7	423
Coopers	.....	10	Miscellaneous	9	611
Architects	1	10	Temporary work	33	946
Coach builders	.....	9	Number of employers intimating vacancies	139	3,765
Engravers	.....	9	Number of vacancies intimated	184	4,269
Page boys	6	7	Applications for advice regarding education and employment (about)	192	8,100
Furriers	.....	6			
Shirtmakers	.....	6			
Leather merchants	.....	6			
Fishing-tackle makers	1	6			
Glass blowers	.....	5			

Employment and vacancies.

	For 4 weeks ending Mar. 14, 1913.	Total since Sept. 1, 1912.	Total since opening, Sept. 6, 1909.
Apprenticed	110	605	2,985
Office work	17	176	1,009
Girl probationers	7	7	7
Telephone operators	2	2	2
Telegraph messengers	17	63	92
Shop assistants	7	106	423
Miscellaneous	9	158	611
Temporary work	33	206	946
Number of employers intimating vacancies	139	777	3,765
Number of vacancies intimated	184	951	4,269
Number of applications for advice regarding education and employment (about)	192	1,135	8,100

In concluding this account of the Edinburgh plan, it may be of interest to reproduce the regulations and suggestions pertaining to

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the working of the educational information and employment department:

REGULATIONS AND SUGGESTIONS AS TO WORKING OF THE EDUCATIONAL INFORMATION AND EMPLOYMENT DEPARTMENT.

1. Duties of director.

1. To interview and advise boys and girls, and their parents or guardians if possible, with regard to (*a*) the occupations for which the boys and girls are suited by ability, taste, character, and education; (*b*) the further educational courses which bear directly on these occupations; and (*c*) the opportunities which exist in the various occupations.

2. To prepare leaflets and pamphlets or tabulated matter giving information to the scholars about continuation work.

3. To keep a record of all pupils who leave school; their educational attainments, the employment they enter upon, and their progress at continuation classes.

4. To send reports to employers when desired as to the progress and attendance of the employees at classes.

5. To organize such supervision, as is approved by the board, of boys and girls after they have obtained employment both in regard to attendance at continuation classes and progress in their industrial career.

6. To act as organizer of the continuation classes, and to keep the system of further education in real touch with the industrial needs of the locality.

7. To report periodically on the work of the department.

2. Duties of headmasters.

1. To see that the registration cards for pupils leaving school are duly filled up and forwarded to the director.

2. To furnish such additional information regarding leaving pupils as may be required.

3. To cooperate with the board in their special efforts to guide boys and girls into the continuation classes as soon as possible after the termination of their day-school career.

4. To arrange meetings of leaving pupils and their parents to be addressed by the visiting members of the board in the month of November, or at such other times as is found more convenient.

5. To address collectively before the summer holidays the senior pupils on the question of choice of suitable occupation and early enrollment in continuation classes.

6. To grant to the parents of leaving pupils an interview to discuss the future of their children.

7. To give to pupils in their last year at every suitable opportunity advice regarding suitable employment and education.

3. Duties of parents and pupils.

1. To give all information required for filling up the registration cards.

2. To make application to the headmaster or director for information and guidance.

3. Parents to see that their children stay at school until suitable employment has been obtained.

4. To intimate to the director particulars as to employment when it has been found.

5. Parents to see that their children pass on to continuation classes immediately on leaving the day school, and remain in attendance until they are eighteen years of age at least.

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4. Suggested action by employers.

1. To notify all vacancies for learners or apprentices, wherever possible, some time in advance.
2. To furnish details as to the rates of wages and conditions of employment in their respective trades, professions, or callings.
3. To apply for information regarding applicants for employment.
4. To encourage attendance of employees at continuation classes by one or more of the following methods, viz:
   (*a*) Guarantee of fees.
   (*b*) Special rewards.
   (*c*) Exemption from overtime.
   (*d*) Payment of extra wages to those who reach a given standard of attainment.
   (*e*) Opportunities for promotion to specially qualified pupils.
   (*f*) Facilities to attend classes during work hours.
   (*g*) Direct personal interest shown by periodic visits to the continuation schools.
   (*h*) Arranging meeting of workers to be addressed by a member of the board and the organizer of continuation classes.
5. To offer suggestions as to the equipment and schemes of work for trade and technical classes.

VIII. MEDICAL INSPECTION AT THE START IN LIFE.

Every part of the United Kingdom has its certifying factory surgeons, so called, appointed by the chief inspector of factories. There are altogether 2,000 of these officers who are frequently also medical officers of health, and, most unfortunately, are paid for the examination of children by fees from the employers. The duties of the factory surgeons, under the Factory and Workshops Act of 1901 and 1907, and the order of the Secretary of State, are:

(*a*) To examine every child or young person under the age of 16 within 7 days (or 13 days in the rare cases where the surgeon's residence is more than 3 miles from the place of work) of his commencement of work in a factory or in any workshop where one or more of the following processes are carried on: File cutting, carriage building, rope and twine making; brick and tile making; making of iron and steel cables, chains, anchors, grapnels, and cart gear; making of nails, screws, rivets; baking bread, biscuits, or confectionery; fruit preserving; making, altering, ornamenting, finishing, or repairing wearing apparel by the aid of the treadle sewing machines.

(*b*) To make certain examinations and inquiries in connection with accidents, workmen's compensation cases and dangerous trades.

It should be noted that, under the Factory and Workshops Act, a worker under the age of 16 must be reexamined each time he changes his place of employment. "Half-timers," that most pitiful class of spent children, must also be reexamined when they commence employment as "full-timers." Something like 500,000 examinations are made annually. In 1910 nearly 8,500 children were rejected as being physically unfit for employment. In about 6,000 cases the surgeons exercised their powers with more or less care under the Factory and Workshops Act (1901) to grant "conditional certificates,"

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e. g., pass the child for employment subject to exclusion from certain processes entailing danger. In 1911 the number of young persons rejected from employment amounted to 10,000. Some juvenile advisory committees have undertaken to follow up cases of boys and girls rejected by the certifying surgeons and to find them suitable employment if any employment is desirable. There is very great need of coordinating the activities of factory surgeons, medical officers, and the advisory committees. No one more keenly appreciates the present unsatisfactory situation than does Sir George Newman, the chief medical officer of the board of education. In the United Kingdom, as in the United States, there has been little intelligent effort to correlate the work of employment health inspection with the social needs of the children.

Cooperation is essential from every viewpoint. There is nothing to prevent the child rejected at the factory gate by the factory surgeon from obtaining employment in an occupation outside the factory act and removed from any legal scrutiny, employment often infinitely more harmful physically than that from which he has been rejected. Because the home and the school figure so little in the present methods of medical factory inspection, the rejected child is frequently unable to explain to the parent the physician's reason for rejection. The factory act stipulates that a written explanation of the reason for rejection shall be given, but this provision is a dead letter. An exceptional illustration of the cooperation here suggested may be found in the efficient work of the medical officer (school) for Dewsbury. In this instance there is the fortunate fact that the medical officer is also the certifying factory surgeon, a situation which gives him the opportunity to see the child in school before employment, and in the places of employment at the time of being engaged.

This physician has made it his business, wholly on his own initiative, to notify the Dewsbury advisory committee for juvenile employment, of the rejections made which needed the attention of the committee. The committee's secretary or some member visits the parent until the children obtain suitable employment or medical treatment. In addition to giving information of rejected cases, another group of children are also reported to the advisory committee. A certifying factory surgeon meets with certain children who may have some defect which careful treatment can remedy and thus prevent later and more serious obstacles to passing a medical inspection.

The following table shows the cases of all kinds reported by the Dewsbury certifying factory surgeon to the advisory committee and dealt with during the year 1911 to April, 1912:

Cases notified as rejected from employment	52
Cases where conditions have improved and the children are now in suitable employment	19

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Cases where children have received medical treatment and are now in suitable employment	31
Cases of children unfit for employment	2
Cases of delicate children in employment notified	24
Total number of cases rejected and delicate visited and reported on	76

The following is an interesting table of cases in connection with the Dewsbury work, interesting because of the comments recorded on the conditional certificates:

Year.	Reason.	Work allowed.	Work forbidden.
1908	1. Lateral curvature of spine	Attend loom	Not to lift heavy baskets, etc.
	2. Defective vision	Folding blankets	Machine work.
1909	1. Defective vision, lateral nystagmus (congenital)	Simple handwork, and general errand work in patent-glazing factory.	Work with machinery.
1910	1. Mentally somewhat dull	Paper-box making by hand.	Anything to do with cutting or machinery of any kind.
	2. Too young	Making firewood into bundles.	Not to chop wood, work at machinery, or carry heavy weights.
	3. Small stature	Errand boy	Do.
	4. Do	do	Do.
1911	1. Left knock-knee	Fringing machine, as this allows sitting.	Work necessitating prolonged standing.
	2. Operation for hernia years ago.	Ordinary work	No lifting or carrying weights.
	3. Small stature	Giving in	No weight lifting or work with machinery in motion.
	4. Knock-knee	Sew buttons on blouses	Not to use machines.
	5. Heart disease	do	Do.
1912	1. Small stature	Giving in	Nothing else in connection with weaving.
	2. Do	Winding	Nothing entailing overreaching or weight lifting.
	3. Post laparotomy scar	Light work in connection with printing.	Prolonged standing or machine work.

The Dewsbury advisory committee has made an investigation not only of working children, but also of school children who work out of hours, an evil which does not as a rule come to the notice of the medical or any other officers.

These surveys of the range of employments in which children are found, and of the working hours of children whose energies are presumed to be dedicated to the State in the work of growth and self-improvement, are suggestive of the possible disclosures, once advisory committees, schools, and medical officers unite, as they should in a comprehensive policy of protecting youth. There have been not a few investigations into the physical condition of working school children. While differences in the health of such children have been found to be dependent in part upon the nature of the occupation, the strain, confinement, etc., all indications point to beginning work at too early an age as a prime source of breakdown and later incapacity. There is a wealth of suggestive material to be found in the reports and investigation of a number of school medical officers. One of them will be briefly summarized.

(a) Paper boys, 89. Get up between 5.30 and 6 a. m.; usually have a piece of bread and perhaps some tea before they leave home; hasten to the station or newsagent's shop, which may be as much as 2 miles away from their homes, for bundles

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of papers, take the papers to various houses; length of round varies; time taken varies accordingly from 1 to 2½ hours; then a hasty breakfast at home before going to school. Many of the boys have an evening round also. The average wage is 2s. 6d. per week; some of the boys who sell papers, in addition to delivering them to regular customers, get a commission on the number sold, and earn from 4d. to 6d. per week. Their corrected average height was 1 inch, and weight 2½ pounds less than those of the 383 boys not employed out of school hours. Slight spinal curvature was found to be more frequent among these boys than among those employed otherwise, owing to the heavy bundles of papers carried.

(*b*) Milk boys, 37. Get up between 4.30 and 5.30 a. m.; have a morsel of food before leaving home, rounds generally take 3 hours or longer, afterwards a hurried breakfast, often eaten on the way to school. Some of these boys go around again during the dinner hour, some when afternoon school is over. Their average wage is 2s. 6d. per week. The corrected average height of these boys was 1 inch, and weight ½ pound less than those of the 383 boys not employed. Those who had worked for two years or more were found to be 2 inches and 3 pounds below the average.

(*c*) Errand boys, 66. These boys spend most of their spare time in the dinner hour and in the evening in delivering parcels or baskets of provisions; they often carry heavy weights, and are apt to take very hurried meals. They generally earn 2s. or 2s. 6d. a week. Their average height and weight were not found to differ much from the normal, but some who had worked for two years or more were found to be as much as 1½ inches and 5 pounds below normal.

(*d*) House boys, 77. Employed in the early mornings to clean boots and knives, carry coals and so forth, in private houses. Get up about 6.30; work for 1 or 2 hours before school; are often provided with breakfast by their employers. They earn about 2s. a week. These are picked boys who work under good conditions. Those examined were found to be on the average ½ inch taller and 2 pounds heavier than the nonemployed boys.

(*e*) Boys employed in miscellaneous occupations, e. g., garden boys and barber's boys, 41. Little or no difference was found between these and the nonemployed boys.

(*f*) Boys employed on Saturdays, and sometimes Sundays as golf caddies or as errand boys (38) were found to be of normal height and weight for their age.

The success of the experiment in Dewsbury has led the advisory committees in other places to seek the cooperation of certifying surgeons. Some sort of cooperation has been secured or promised in Huddersfield, Leeds, Halifax, Nottingham, Northampton, and in other towns. In Huddersfield the education committee passed a resolution authorizing the school nurses to assist the secretary of the juvenile employment advisory committee in following up cases.

The relation of medical supervision to the right start in vocation is clear enough. Inspection at the leaving stage is indispensable. All vocational counseling, labor exchange service, and aftercare must take their cue from the physician's report. Examination at this stage reveals the results of school life, home environment, incidental employment, and the inheritance of the candidate for a calling. This examination, furthermore, is of peculiar interest to the English people, because the children of this age are nearing the insurable age under the Insurance Act. At no other period in a youth's life is medical supervision more necessary, and from a public viewpoint

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more urgent. The prevailing practice in all the countries studied, as with our own, shows a too slight regard for this vital matter. The whole scheme of factory legislation, vocational schools, and social legislation in general, rests on insecure foundations if the medical supervision of adolescent workers is inefficient. Medical investigations in England have shown that physically unfit children are liable to a high degree of accident in the course of their work. An intrinsic value in medical supervision is that it supplies a method of individual selection of the worker, something no general provisions, such as factory acts, can as well accomplish.

The Employment of Children Act, 1903, contains the following provisions:

> A child shall not be employed to lift, carry, or move anything so heavy as to be likely to cause injury to the child.
>
> A child shall not be employed in any occupation likely to be injurious to his life, limb, health, or education, regard being had to his physical condition.
>
> If the local authority send to the employer of any child a certificate signed by a registered medical practitioner that the lifting, carrying, or moving of any specified weight is likely to cause injury to the child, or that any specified occupation is likely to be injurious to the life, limb, health, or education of the child, the certificate shall be admissible as evidence in any subsequent proceedings against the employer in respect of the employment of the child.

The local authority is thus given ample power medically to guide the young work seeker. Instances are unfortunately too few where the physician has thoroughly exercised this power.

What may yet be accepted as a necessity in the English scheme of vocational assistance is the appointment of special medical officers for the advisory committees, who shall act in a coordinate capacity with the school medical officer and the factory surgeon. These medical advisers would probably be assigned to work in connection with all the various types of schools, such as evening schools and trade schools, and with the children who use the labor exchanges.

Inspection at the place or time of employment goes only part way. The child-helping schemes so extensive throughout England and Scotland need above all else the reenforcement of a medical department with full powers to investigate occupations in their relation to a sound physical development. The absence of a medical research and health guidance department in almost all vocational assistance enterprises is responsible for much of their ineffectiveness.

IX. COMMENTS.

The preceding pages have attempted to show the magnitude of the schemes now under way in England and in Scotland and to set forth the details so far as possible by means of original documents. Difficulties in the development of those schemes have necessarily absorbed

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the energies of hundreds of people interested in boys and girls. To carry out a national project whereby every boy and girl and parents may learn what the employments are, and how to qualify for the desirable opportunities, has been a labor of immense difficulty, as it has been of social and educational value.

Information is being collected about juvenile employment which in time will be of immense use in further legislation. The work of the volunteers, who are getting both experience and training in their association with the advisory committees of the schools, will in time become the nucleus of important movements for improving the conditions of juvenile employment. The devoted volunteer service is certain to work out a technique through more definite schemes of preparation for the important duties it involves. The fact should be borne in mind that advice, training, or placement can not alone reform the existing unsatisfactory conditions of child employment. There is much to be said in favor of the labor exchange, whether it be for juveniles or adults. It is certain social waste to leave the labor market unorganized. From the viewpoint of the child-welfare worker, however, and of the educator, the success of a placement scheme lies not in the increasing number of vacancies which are filled, but in the diminishing of the causes which send young people into premature employment. Working conditions are only slightly and indirectly affected by the kindly supervision of an advisory board. It may be that in time certain labor exchanges, through exceptionally powerful advisory committees, will control the local labor supply to the extent of compelling more favorable conditions precedent to placement, but this is a long, uncertain, and roundabout method.

Experience teaches that legislative action alone can best cope effectively with so complex a situation. Evening industrial training for young workers can not be regarded as more than a passing solution. The growing tendency in the most advanced American school systems is to exclude children under 17 from the evening schools. In the minority report of the royal commission on the poor laws will be found several paragraphs which sustain this position. The report states:

> Useful as evening continuation classes may be to particular individuals, it is impossible for boys who are exhausted by a whole day's toil to obtain either physical training or the necessary technical education. We have, therefore, come to the conclusion that if we want to turn into competent and trained workmen the 300,000 boys who now annually in the United Kingdom start wage earning at something or other, there is only one plan. We must shorten the legally permissible hours of employment for boys, and we must require them to spend the hours so set free in physical and technological training.

This report, therefore, recommends:

(1) The statutory prohibition of the employment of any boy in any occupation below the age of 15.

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(2) The limitation of the hours of employment of any youth under 18.

(3) The compulsory attendance of boys between 15 and 18 at a suitable public institute, giving physical training and technical education.

Every vocation scheme for the benefit of young people must inevitably reach these conclusions. Both the voluntary principle and the principle of benevolence break down or are thoroughly ineffective when confronted with the large mass of children whose energies and futures need to be protected. Nor can apprenticeship be regarded as a solution of the juvenile employment problem. England, like America, is quite in the dark as to what skilled and unskilled occupations really are, and consequently is little prepared to formulate the kind of training needed. Moreover, there has been during the last half century an ever-increasing demand for low-skilled labor as a substitute for the handworker employed before the widespread application of power, ingenious machinery, and new systems of operation. It is of course true that the right working out of the present labor registry and advisory plans must help better working conditions, as has been the case in the post-office messenger-boy service. But the fact remains that industry will continue to use an enormous and increasing amount of unskilled or partially skilled labor, and it is inevitable that a large number of young people, probably, the vast majority, will for a long time find their only opportunities in this field.

The most immediate problem with respect to these children is not an extension of evening training facilities so much as it is a thoroughgoing scheme of protection; not the acquisition of manual skill, as it is the conservation of their physical and moral vitality. Industry holds out diminishing educative possibilities. In the majority of occupations, indeed, there is no place for apprenticeship. Yet service to an individual or a group of individuals is none the less valuable because it fails to solve the problems of a multitude. It is much to be hoped that the excellent skilled apprenticeship and employment committees of London and the provinces will extend their work. They are helping many young people to a more favorable start in life than would have been possible for them without this assistance, while in the performance of their duties those committees are gathering useful data as to modern industrial conditions. Their members have been invaluable, too, in the development of the plans of the boards of trade and education. Apprenticeship provisions should by all means be furthered, but as a general scheme for altering the present stage of noneducative and subdivided employments, it is an impossibility. What the schools must ask of employers, however, in view of industry's vanished old-time educational returns, is at least a revival of the spirit and the motive in what was best in the old apprenticeship. The

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employer's contribution to this end is made up of two important factors; he must provide the leisure, through shortened workdays, and give his practical cooperation to the school authorities, who are bound to take in hand the drifting adolescent. Sooner than many people realize, the schools will be required definitely to perform some of the functions which have hitherto been distributed among such agencies as the home and shop. To accomplish this, the schools must undergo changes, as they have already changed in response to other social demands made upon them for a generation past. Comprehensive vocational assistance through specially trained teachers and others must become a part of the new machinery of service—service which should begin in the elementary grades and continue at least to the period of young manhood and womanhood. This seems to be the conviction of thoughtful people everywhere.

There are committees with no very deep conception of their duties. Critics of the Board of Trade point to them as arguments against the entire scheme. It is true that some committees and some bureaus do the perfunctory and conventional work of superficial advising and job finding. But it is hardly just to indulge in sweeping condemnation because there is lack of vision and understanding in particular instances. The best of the committees know that the school age must be raised, that volunteer advisory service must at least be reenforced by the responsible service of the paid specialist, that opportunities for vocational training must be indefinitely extended, that young workers should attend compulsory, daytime vocational and other educational courses, and that no young people should be employed except through the direction and with the guidance and supervision of juvenile advisory committees.

The question is sometimes asked as to the place of the parent in so comprehensive a plan of helping children vocationally. Those who face the facts of modern life know too well how little the parent figures as a directive influence under present conditions. The children practically do all the deciding, the parents even remaining in dense ignorance oftentimes as to what their children are doing. Among the contributions of the vocational-assistance movements in America, England, Scotland, and Germany not the least are the awakening of an efficacious sense of responsibility on the part of parents and the fresh guidance resources brought into the home.

X. NOTES ON GERMANY.

Although German literature on the subject of vocational counseling and the choice of a life career is considerable, and some of it of a most thorough and excellent character, there is at the present time not more than a beginning of distinct and organized activity in this field. German social enterprise has concerned itself thus far largely,

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among other things, with the immense task of establishing the continuation and part-time school system, which has become a world model, and the system of labor bureaus which place boys and girls who seek work.

Nevertheless the schools have not been indifferent to the career problems of the children. Before the school-leaving period draws near, and shortly before the fourteenth birthday, teachers and others call attention to the various wage-earning opportunities open to the children. They describe the supplementary training provisions of the municipality and the procedure in getting work through the labor exchange. In a few cities and towns municipal vocational information offices have been started—usually in connection with some well-established agency, such as the statistical bureau—for the purpose of advising parents, children, and teachers as to industrial conditions, the state of the labor market, and the nature of the demand for workers. These "consultation hours for parents," so called, are among the most interesting and promising activities in the recent German movement for organized vocational guidance. A notable instance of this type of work is to be found in the city of Halle, where the director of the statistical bureau, Dr. Wolff, has for several years conducted on his own initiative a department for vocational counseling. The abundant economic material of the office is made available to those who seek information as to the nature of various employments. Office hours are advertised when the director or an assistant will be found on duty for vocational counseling.

The schools, too, are keenly interested in preventing the children from becoming careless job seekers, and they take a personal interest in directing children to the nearest labor exchange and to other placement agencies. Parents are invited before the children leave school to attend informal conferences, at which a brief talk is given to point out the mischief of drifting into employment without forethought and plan. Pamphlets are often distributed showing what the various occupations are and their educational requirements; also the institutions, public and private, which give the required training. Specific advice is avoided by German teachers, who realize that giving occupational information is the work of a specialist and that people unprepared for this task should not assume the serious responsibility it entails. The school authorities nevertheless endeavor to use their influence in securing attendance of the leaving children at the labor bureau until they have been placed.

Once started in employment, the boy, and in some places the girl, will be required to attend the appropriate continuation or part-time vocational school for two or three years four or six hours a week. If the boy is in mercantile work he will go to a commercial school,

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and if in industry he will attend courses dealing with the practical or related theoretical work of his trade. For that army of children who are in unskilled callings classes are formed to give instruction in subjects common to a large group of miscellaneous occupations and helpful also in developing character and citizenship.

The question as to what further instruction a boy or girl is to receive is settled by the nature of the employment undertaken. Therefore, it is not the choice of a career which confronts the average German schoolboy, but the question as to how well he will do the work he is almost destined for. To be sure, the children have some choice as between entering the ranks of the skilled or the unskilled pursuits, the latter paying children, as is everywhere the case, relatively more attractive wages than the former. But for the most part, the social and economic position of the children settles the general class of employments which they are likely to go into.

In this fact lies the explanation for the absence thus far in Germany of a scheme of guidance comprehensive and supported by law. Guidance, it has been thought, was a somewhat needless procedure in the case of young people whose career was more or less a predetermined matter. Recent events show the discontent of thinking Germans with such a mischievous assumption and the situation which it has created. Many towns are distributing occupational handbooks and a large number of social agencies are working for organized schemes of vocational information and guidance to precede the employment stage.

Certain far-reaching changes in industrial conditions have brought about the new demand for vocational guidance. Germany's most successful part-time vocational schools are to be found where the factory system has not yet transformed the old-time methods of production. In southern Germany, where shops employing from 10 to 50 workers are the prevalent type, apprenticeship is still a possibility. Individual skill counts for much where the worker is not altogether a process or an automatic worker. Initiative and manual dexterity find scope in the small shop, where often a variety of tasks are to be performed by an individual. This is not the case in the factory-dotted areas of north Germany.

The part-time school as a State enterprise in apprenticeship training is only a logical continuation of the system which the employers themselves not very long ago supported in self-interest and managed as part of their function.

But in the rapid changes, from small to large methods of production, from a rural and semirural to an urban and mobile population, and with increasing subdivision of labor, an apprenticeship system can not alone meet the needs of thousands of young people facing the wage-earning life. Nor does the apprenticeship system, even though

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supplemented by the vocational school, assure a right start in life for all classes of children. Criticism has therefore grown in volume, and in the public addresses of leading German economists, educators, and social workers will be found cogent arguments for the establishment of supplementary guidance plans to help children and parents.

Despite the admirable placement and training provisions to be found in a number of German States, the fact remains that there is an unregulated and menacing drift of young people into trades, a drift which causes oversupply of workers in some industries, while in others there is a scarcity of workers. The economic results of this chaos have been pointed out at recent conventions of economists and labor organizations. The probable breakdown of training provisions and a condition of chronic unemployment and underemployment for a large percentage of the workers are the consequences. Thinking Germans no longer rely on the law of supply and demand to work magic in correcting the maladjustment. The tendency on the part of those leaving school to make straight for the immediately profitable unskilled occupations threatens the efficacy and appeal of the vocational school. In the trade and labor census of 1907 there were 350,000 young people noted as employed in miscellaneous callings, aside from the familiar trades. Of these not more than about 150,000 had had any vocational training, the rest being employed as helpers, in no need of specific efficiency training. There is no reason to believe that the number of such neglected factors in the working population has diminished. On the contrary, all indications point not only to an increase in their number, but to the possibility of a majority of young workers finding themselves before many years in the ranks of the blind-alley workers. Neither well-disposed individuals nor local communities are strong enough to deal with a situation whose roots are deep and wide. For this reason a number of experiments have been undertaken for the purpose of trying out what it is hoped may lead to a State-wide or Federal plan for vocational guidance.

Of late years, in Munich and in Pforzheim, parents, teachers, physicians, and officers of the labor bureau and labor unions have cooperated in conferences for the purpose of emphasizing the thoughtful selection of life work and of calling attention to less familiar and to overcrowded trades. Several labor organizations, too, have attempted a counseling service, but with little success, owing to their inability to give this work the time and resources which it requires. In 1908 the Halle bureau of statistics, already mentioned, opened its office evenings to information seekers. The schools were notified of the bureau's readiness to give information as to wages, conditions, and apprenticeship requirements of the various industries in the city. A secretary now keeps records of the advice

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given and endeavors to follow the progress of the children who have been counseled. The local labor bureau, of course, mediates in placing the children. The organizer of this experiment, Dr. Wolff, believes that the child's natural counselors, the parents, are often too busy and too little informed as to the nature of the various employments to be effective advisers. Parents' consultation hours were therefore established in the director's office to enable fathers and mothers to discuss with experts the vocational problems of their children. The consultation office has been open also to adults who sought information about various trades and conditions. The work has developed beyond the stage of mere information giving, definite suggestions being now given to young applicants, based on the bureau's study of their educational equipment, health, personal inclinations, and the financial condition of the family. When the decision is finally made by the parent and child, the help of the bureau is sought in securing an opening, and especially an apprenticeship opportunity for the boy. Private agencies and individuals are often enlisted in the search for a promising place. The bureau of statistics endeavors to keep its advisory material fresh by frequent study of the labor market, of demand and supply, and the promising avenues of employment. A record is kept of employers who will cooperate in an apprenticeship agreement. Various trades and commercial organizations have been enlisted in assigning members to give public lectures on the various trades, businesses, and professions. In 1908, the year of opening, 27 applicants made use of the Halle consultation hours; 54 in 1909; 79 in 1910; and 104 in 1911. The range of visitors to the office has now grown to include a large number of business men, manufacturers, teachers, and public officials who desire help in a large variety of occupational problems. Of 264 individuals counseled during the first three years of the consultation hours' service, 128 had had only elementary schooling, while the others were distributed among the higher schools. Two-thirds of all who applied were 14 years of age or under. Eighty-five were started in life under apprenticeship arrangements.

Halle has not neglected its girls. Consultation hours for girl apprentices have been started by a body of public-spirited women, while the task of starting girls as domestic servants is looked after by the housewives' association of the city. Halle's example has been followed by half a dozen other cities, the statistical bureaus, which in Germany represent a high type of efficiency, usually acting as centers of vocational information for schools, parents, and children.

At the conventions held during recent years by associations of labor-exchange officials, of economists and social workers, notably those held in Dusseldorf in 1910, and more recently in Breslau and

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Elberfeld, the papers which attracted particular notice were those advocating municipal vocation bureaus.

This proposal has borne fruit, for we find similar recommendations appearing in the political platforms of various parties, especially in relation to social policies for cities and towns. In August, 1913, Dusseldorf opened a guidance office for the city and surrounding districts, accompanied by placement bureaus for apprentices. Frankfort is carrying on a series of motion-picture lectures showing the various employments, the object being to interest boys and girls in thinking about their future vocations. The Berlin labor-bureau central office conducts public motion-picture shows with a like purpose, the first of these having been given in May, 1913. In 1912 the Leipzig manufacturers, association started a guidance bureau for young people. In this enterprise they have not had the support of the workingmen, for one reads in their organ, the Leipzig Labor Daily (Leipziger Volkszeitung) of May 14 and 15: "The vocational-guidance bureau ought not to be in the hands of an employers' organization until we secure a very effective law for the protection of apprentices against overwork and underpay;" and "Such bureau should be a State or municipal institution."

There are other advisory offices throughout Germany, too numerous indeed to record in this brief survey of significant beginnings in organized vocational guidance inspired by social service aims. Some of these offices are supported by philanthropic societies, some are connected with established charities, some are employers' devices to get more suitable employees, and others are slight experiments looking to a public undertaking of the work.

The vocational guidance service of some of the German labor bureaus has been so excellent that a brief account of their work will be of interest. In Strassburg, since 1902, the municipal labor bureau has endeavored, with the official support and direction of labor organizations and the chamber of commerce, to start boys in life as well as possible. The control committee is made up of employers and employees from various occupations of the district. This committee seeks information as to suitability of the employers who announce the vacancies. All boys who are about to leave school, whether with work in prospect or not, are obliged to report themselves with their parent to the labor bureau, the school officials taking pains to secure this attendance. The teacher distributes cards to be filled in by all the boys and girls leaving the elementary schools, and their parents are summoned for an evening conference with the school authorities, who explain the purpose of the cards. Within a few days the cards must be taken to the labor bureau. Each boy at leaving time is examined by the health officer as to his physical condition, and notes are entered upon the boy's card. This card is

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examined by the labor bureau officials, as well as by employers' committees. All boys and girls report back regularly with their control cards until they have been placed as suitably as circumstances permit. To help in cases where poverty would force an unwise choice of employment, scholarship grants, or subsidies, have been started with Government aid, and there are other instances of special financial assistance to start the boy properly.

The Munich labor bureau, like that of Strassburg, just described, works in intelligent cooperation with the school department. The boys go out of school to a large variety of apprenticeship openings, such as mechanics, bakers, locksmiths, woodworkers, etc. They are carefully examined medically. Every effort is made to prevent waste and drifting in undertaking employment. The German people have a horror of waste in any form, particularly the waste due to intermittent employment. Everywhere vocational advice stresses the importance of preparation for permanent work.

Germany, like England and our own country, is not without its grievous problems of child labor. Not all the children can avail themselves of the advice given; and there are instances enough of parents who are ignorant and irresponsible. Efforts toward better regulation of juvenile employment, the raising of the compulsory school age, and the prohibition of certain employments to minors are energetically going forward. Nevertheless, Germany has laid foundations of social and educational policy which are of immense assistance in the present efforts for vocational guidance. It is a truism in German educational thought, that no occupation, whatever may be its character or problems of organizations, can be permitted to go on indifferent to the developmental needs of its young workers. Compulsion has long been looked upon, at least in some parts of Germany, as the foundation of success in any scheme of training young workers. This principle is becoming the universal practice in the Empire. Influenced by this, there are advocates of a like policy with respect to the start in life of the boys and girls; that is to say, while decision must alway necessarily be a free act, and besides the free act of parent and child, there should be suitable provision, publicly supported, for the supplying of vocational information and expert guidance to young people who are headed for employment. While the industrial field is an object of special emphasis with the leaders in the German movement, there is no failure to recognize the fact that such guidance is indispensable to all career seekers, whether in the professions, commerce, trades, or Government service.

When contrasted with the widespread organization of counseling service in the United Kingdom, the foregoing account of German beginnings would seem to indicate a rather tardy recognition of the problems which confront the school children at the transition stage.

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Such impression would not do justice to the facts. The truth is that in no other country is there a larger body of intellectual leaders who have been thinking deeply on this transition problem. University professors, recognized authorities in social and civic affairs, distinguished economists, party leaders, publicists, and men and women at the forefront of advance movements in the Empire are among the conspicuous participants in the beginnings which this chapter has only briefly sketched.

XI. SCHOOL AND EMPLOYMENT.

Some of the instructive experiments by school and other agencies abroad have now been described and their social bearing noted. This final chapter will attempt to suggest an outline for an American school policy with respect to the relation of our schools to the start in life of their children, profiting so far as possible by the lessons and cautions of foreign experience. In the absence thus far in this country of considerable experience in connecting schools with employment and in organizing safeguards for the start in life, it is of course obvious that little more than a tentative draft of a policy and of the possible next steps can be ventured; yet for all that actual practice may suggest in the way of detail, machinery, and administration, there are certain principles, fundamental to any service connected with the start in life. Experienced social workers, educators who make their school work function as social service, and efficient workers connected with the movements for vocational guidance and education are in no doubt as to the need of taking the next steps and as to what at least one or two of these steps should be.

To competent students of the problems considered in this study, it is clear that a thorough scheme of vocational advising and of training necessarily involves provisions for placement, for supervision, and for methods of organized study which are calculated to yield material for enlightening public opinion and for legislative action. Vocational service of any kind is so large an undertaking that specialized phases of it may well occupy the whole time of any organization, but it is submitted that any scheme of vocational service which does not in some way come in direct contact with the problems connected with the actual start in life of youth is in danger of finding itself an unreal undertaking, busied with lifeless abstractions regarding shadowy beings, instead of men, women, and children.

Participation, then, is here advocated as fundamental to any successful scheme of vocational service; such participation as we know to be the best feature of the neighborhood worker's activities.

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Contact with the practical world insures that salutary concreteness of criticism and appraisal which sound growth requires. Some personal touch with boys and girls and men and women, and the trying out of one's theories and capacities as a vocational counselor in real experience, are the key to successful vocational assistance.

Workers in the fields of vocational education and guidance, therefore, whether they be in vocational schools, labor exchanges, advisory committees, or vocational guidance enterprises, are expected to face their task from two standpoints when helping young people to a start in life. They are forced, necessarily, to deal with the working world as they find it, and they are equally obligated to illumine their work with an ideal of what ought to be the conditions. A knowledge of existing conditions is the foundation of the daily, personal service, which a vocational agency is called upon to render; but without the corrective of a social vision any vocational scheme, whatever may be its immediate practical benefits, can hardly be regarded as an important instrument of human conservation. The knowledge here suggested can not be based on mere fragmentary accumulation of many kinds of occupational details, gathered in the course of visits to work places; it must be knowledge founded on organized data gathered by the specialist trained in the technique of vocational investigation. The vision and ideal here suggested must not be a vague and futile longing for something different. but an intelligent purpose founded on clear sight of a goal, and expressing itself in aggressive and telling ways.

It is now trite to say that school life is sharply ended at the option of children who go to work as soon as the law will let them. Likewise is it now a truism that this leaving time has been mostly neglected and the children exposed to peculiar dangers. The child's entry into working life has not been on the whole looked upon as a special concern of the school. Individual teachers and school principals have always, doubtless, taken an interest in individual children, or even in entire classes. But, outside a few cities in this country, one will not find any systematic and worth-while effort to compile and interpret the work histories of children who have left school for employment; and few indeed are the agencies which concern themselves with the transition problems of youth in the abyss between school and work. There are, to be sure, the vocational schools and vocational departments of our high schools, which, as a matter of course, are more or less active in securing employment for those whom they have trained. Not many a school has gone beyond the mere placement stage for its pupils, and not many have scrutinized the occupations sufficiently to influence their own curriculum. But if the vocational schools, close to work conditions though they

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presumably are, and more pressingly required than other types of schools to concern themselves with the start in life, have, on the whole, so little organized the machinery and formulated the principles of service in helping young people during the transition period, what shall we say as to the public schools generally?

The children who leave the schools of our country, whether they graduate or drop out, are obliged to find themselves, somehow or other, as workers. The schools have done little, specifically, to point the way. In a sense, the schools deserve much praise for the little they have been doing toward a vocational start in life; for with no resources, time, or preparation, their efforts in this difficult field could only have been absurdly inadequate and possibly harmful. Several causes account for the failure on the part of the public to support the schools in organizing the much needed start-in-life service. In the first place, the schools have been kept so busy with what is called preparing for life, that the teachers have been given no leisure for more active contact with that life. On the whole, the American public has not called too vigorously for such vital participation on the part of the teachers. In fact, the situation has not been greatly encouraging to that growing number of teachers who are disheartened over much of the present lifeless routine of fitting for life. The community has been, on the whole, too little alive to the moral hazards and the hard perplexities which the young job seeker experiences. Finally, a persistent idea regards work seeking and employment as a private concern of the individual, and the employment bargain and all that follows it as nothing more than the personal affair of the bargaining parties.

Now our best practice and belief continually belie this obsolete notion. That society feels its vital stake in all that attaches to the employment contract, particularly of minors, is abundantly demonstrated by the great variety of protective measures going forward, such as school-working certificates, health and factory inspection, licensing rules for employment agencies, and the increasing number of child-labor laws and of State-aided vocational training opportunities.

The English system of juvenile advisory committees rests on a clear recognition of society's duty to protect and befriend its young work beginners. The increasing importance of school people in the work of these committees is suggestive of the place which the schools will occupy in the near future as guardians of the adolescent.

From two directions the schools are compelled more and more to consider their relations to the start in vocation. On the one hand, the movements for vocational training and guidance bring the school face to face with the occupational world; on the other, the organization of the labor market through public employment offices, a field

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in which we have been thus far lamentably backward, will oblige the schools to work out a policy with respect to these agencies. As yet few States maintain public employment offices; but, doubtless, there will be many more, as the wastefulness of present work-seeking methods is realized. Nevertheless, not many schools will be satisfied merely to refer their leaving children to a near-by public employment office, with no voice, oversight, or power.

To a considerable degree the success of vocational guidance and training efforts is conditioned by the thoroughness of their articulation with working conditions and with social movements. Within a well-defined sphere of its own in the school system, vocational service is of the utmost value. It endeavors to help pupils to self-knowledge, and to reconstruct school programs in order that they may more sensitively minister to the self-discovery and economic needs of different pupils. Vocational service—both guidance and training are here included—is an instrument for talent saving, and for interpreting school life in terms of career building. In its larger relationships, however, vocational service is only one phase of the social organization of school and vocation. It introduces into education the motive of the life career and the idea of fitness of the individual, apart from class or group; it introduces into employment the idea of fitness of the task, and appraises the occupations in terms of career values as well as social worth.

The passing of the labor exchanges act was facilitated by the belief that a personal advisory service in connection with work seeking would help lessen the waste due both to job hunting and to misemployment. No little addition to the volume of unemployment comes from what Mr. W. H. Beveridge, director of the labor exchanges, calls "qualitative maladjustment." No more promising institution than the public school exists to undertake the task of qualitative vocational adjustment. The question arises as to whether the public-school system would best undertake alone to deal with the start in vocation or leave it to other agencies, while reserving for itself the task of providing for needs which arise in the course of employment, such as further training opportunities. It is submitted that the schools will have to concern themselves, actively and dominantly, with every phase of the vocational start in life. Is the average school system ready to undertake this new and enormously difficult business? It is not. Indeed, so little is it prepared to do this work at the present time that a hasty undertaking of it would probably indicate a lack of understanding. It is doubtful, in the first place, if a school department can alone effectively organize the labor market for young workers. The pronouncements on this subject by Scotch and English authorities, given in preceding chapters, are convincing. On the whole, experience seems to support the proposition that the

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school system is not the most suitable agency to attempt the organization of the labor market for the young, and the correlative proposition that the carrying on of juvenile employment agencies without control over them by the school, is not in the best interests of the children.

It is assumed that work seeking in this country will more and more be under the direction of the public through State or possibly municipal agencies; for we are almost the only advanced industrial country to continue the present demoralizing chaos of an unorganized labor market. Public labor bureaus, when rightly managed and properly understood, are capable of considerably larger services than labor registration, important though this is. Developments in the best of these bureaus in England and in Germany promise a new type of civic center and agency for industrial betterment. Everywhere the best practice is to separate the juvenile from the adult departments of these bureaus, and the girls' from the boys' departments. More and more the young work-seekers' problems are being treated as something distinctly different from those of adults. We are confronted, then, with the need of not only organizing placement provisions for the young, but, in addition, a comprehensive instrument of social and educational protection.

The public school must remember the fact that it is, primarily, an educational institution with social aims. What a century of child-welfare effort and experience has taught the friends of working children, the schools can, least of all, afford to ignore. More than any other institution, the school must stand for a high minimum of protection for all children. It is not to the credit of our schools that, on the whole, they have been unaware of a situation which many an employer has known for some time, and this is, the economic uselessness of children from 14 to 16. Schools have sometimes been willing to plunge into small or large employment schemes as if full-time work were the right thing for growing children.

Of the public schools, more than of any other institution, public or private, we have the right to expect a clear vision and a determined stand with respect to the interests of childhood and youth. Private societies do and may, by way of experiment, make concessions and compromises in order to carry out their various purposes, but in the practice of the public-school system we look for exemplification of the permanent principles which should control all the activities in which young people find themselves.

There are three distinct aspects of the problem of adolescent employment: The educational, economic, and social. Through extension of vocational training opportunities, and especially through the provision for prevocational schools, which, when their purposes are better understood, will become *self-discovery schools*, and as such

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afford young people and their teachers a most important basis for vocational guidance, the schools are beginning to deal with the first of the three aspects named.

As public labor offices grow in number, the economic side of the problem will be given at least a preliminary treatment. This will be not more than preliminary, however, for a juvenile employment department is, notwithstanding general opinion, a placement agency only secondarily. It is in facing the third or social aspect of the entire problem that we find the basis for satisfactory organization.

This proposed social basis for juvenile labor organization is intended not so much to protect the boy worker or girl worker under 18 against employers as against themselves. The greatest difficulty in dealing with the boy who is about to leave school for work lies in the fact that he regards himself as a worker who has outgrown the learner. Not until disastrous experience has overtaken many of these children do they begin to realize how much a learning attitude would have meant in building a career. A large part of this difficulty is due to leaving the question of the boy's future unconsidered until school-leaving time.

As we do things piecemeal in this country, we are likely to find in a number of places a vocation bureau in the schools, with perhaps a number of vocational training classes; a separate employment bureau of the city or State to which boys are sent or drift; and perhaps a private or semipublic advisory body with no real power, making futile efforts to help the troubled children with a disorganized machinery of service.

We need to write into the law establishing labor offices that a juvenile department shall be managed by a central executive committee appointed by the school system, which committee shall be made up of school people, employers, social workers, and employees, to advise as to the school vocational guidance and training activities on the one hand, and manage the occupational research and placement supervision activities of the labor bureau on the other. This committee should be empowered, through health officers and other trained specialists, to study children; to take them out of work places, if need be; and through scientific investigations to list occupations from the viewpoint of opportunity as well as their manifold reactions on the worker. Children under 16 are to be under training, part time at least, until the public is ready to care for their entire 14 to 16 year period.

From what has been said regarding the duties of a juvenile employment agency, with its suggested two-fold powers, namely, close supervision of the vocational activities of the school system and control over placement and its associated features, it is clear that "employment agency" is a misnomer. Perhaps a better name for such a

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body and agency would be the "vocational service bureau." Service, intelligent, deliberate, and coordinated with the work of all existing upbuilding agencies, is indeed the main business of an employment office for minors. There are problems connected with such employment of the greatest importance to the public, and on these we have little or no information. These are the amount of juvenile underemployment, misemployment and unemployment; the causes of maladjustment and how far training and what kind of training can lessen these causes; and the specific, thoroughly analyzed requirements of the occupations. To enlighten the public as to these matters and secure such constructive legislation as may be necessary is perhaps the most far-reaching work which such a service bureau can do. It is not difficult to conceive that a public enterprise which combines help to groping youth with social planning will in time have laid foundations of a service which will safeguard, strengthen, equip, and inspire boys and girls for their appropriate work to an extent nowhere as yet to be found.

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——— Annual report, 1910. London, Wyman & sons, 1911. (Cd. 5693.) (2/4.)

——— Annual report, 1911. London, Wyman & sons, 1912. (Cd. 6239.) (2/9.)

Departmental committee on the employment of children act, 1903. London, Wyman & sons, 1910. Vol. I. Report. (Cd. 5229.) (2½d.) Vol. II. Evidence, etc. (Cd. 5230.) (4/6.)

Departmental committee on the night employment of male young persons in factories and workshops. Minutes of evidence and appendices. 1912. London, Wyman & sons. 289 p. (Cd. 6711. (2/4.)

——— Report, 1912. London, Wyman & sons. (Cd. 6503.) (2½d.)

——— Report, 1913.

Edinburgh school board. Cooperation between the Educational information and employment bureau and the Labour exchange. 1911.

——— Educational information and employment bureau. Leaflet, circulars, and forms issued in 1909.

——— Scheme for the establishment of an educational information and employment bureau. Adopted by the board, July 20, 1908.

Education (provision of meals) act, 1906. Report on the working of, for the year ended March 31, 1910. London, Wyman & sons. 31 p. (Cd. 5724.) (2d.)

Handbook for the use of the local advisory committees for juvenile employment in London. 1913. p. 35. (Prepared for the London (central) advisory committee for juvenile employment approved by the Board of trade under the labor exchanges act, 1909.)

Hansard. House of commons debates. 1909 to date.

——— House of lords. 1909 to date.

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Interdepartmental committee on partial exemption from school attendance. Vol. I. Report, 1909. (Cd. 4791.) (2½d.) Vol. II. Evidence, etc., 1909. (Cd. 4887.) (2/5.)

Interdepartmental committee on physical deterioration. 1909. Vol. I. Report. (Cd. 2175.) (1/2d.) Vol. II. Evidence. (Cd. 2210.) (4/1d.) Vol. III. Appendix. (Cd. 2186.) (1/6d.)

Labour exchanges act, 1909. Special rules with regard to the registration of juvenile applicants in England and Wales made in pursuance of regulation no. IX of the general regulations for labour exchanges managed by the Board of trade. 1910. (1d.)

London county council. By-laws made by L. C. C. under employment of children act, 1903. (1498), London, P. S. King & son. (1d.) 1912.

——— Handbook containing general information with reference to the work in connection with the Children's care (central) sub-committee. 1910. No. 1332.

——— ——— 2nd ed. London, Southwood Smith, & co., for L. C. C. No. 1556. 154 p. (1/6.)

——— Handbook of the Council's service and the opportunities afforded to boys for obtaining adult employment therein. 1910. No. 1346. (6d.)

——— Preliminary memorandum on the work of children's care committees, 27th July, 1909.

——— Report and resolutions of the Council. (6th April, 1909) and Education committee (24th March, 1909) with regard to the reorganization of children's care committees. (Leaflet issued 11th May, 1909.)

——— Report of the section of the Education committee appointed to consider the question of apprenticeships, 1906. No. 925. (1/—.)

——— Report on juvenile labour in Germany, and how it is being dealt with, by Miss Durham. 1910. No. 1358. London, P. S. King & son. (3d.)

——— Report on the apprenticeship question in minutes of proceedings of the Education committee of the Council on Feb. 24th, 1909. London, P. S. King & son. (6d.)

Memorandum by the Board of trade and the Board of education with regard to co-operation between labour exchanges and local education authorities, exercising their powers under the education (choice of employment) act, 1910. 1911. (1d.)

Reports and statistics regarding continuation classes of central institutions, 1909–10, and 1910–11. London, Wyman & sons, 1911. (Post free, 8d.)

Reports, statistics, etc., relating to continuation classes and central institutions. 1910–11, and 1911–12. London, Wyman & sons, 1912. (6d.)

Royal commission on the poor laws and relief of distress. 1909. Report. London, Wyman & sons. 1238 p. (Cd. 4499.) (5/6.)

——— Appendix, Vol. XX. Report by Mr. Cyril Jackson on boy labour. 1909. London, Wyman & sons. 230 p. (Cd.4632.) (3/9.)

——— Report on Scotland. 1909. London, Wyman & sons. (Cd. 4922.) (2/8.)

Scotch education department. Mem. on the medical examination and supervision of school children. Issued 31st March, 1909.

——— Circular 433. Aug. 10, 1910. Continuation classses and employment agencies.

Standing committee on boy labour in the Post office. London, Wyman & sons, 1913. 20 p.

LIST OF WORKS IN GERMAN.

Albrecht. Berufsberatung. (Sammlung) Kultur und fortschritt, nr. 382–83. Gautsch b. Leipzig, F. Dietrich, 1911.

Shows the advisability of guidance offices, directed by properly instructed persons, in contrast with service given by employment agencies. In the same publication has appeared: Fuerth, Henriette. Die berufstätigkeit des weiblichen geschlechts und die berufswahl der maedchen mit wegweiser für die weibliche.

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Altenrath J. Berufswahl und lehrstellenvermittlung. M. Gladbach, Volksverein, 1911.

This treatise gives a very good survey of the development of the apprentice system; it treats of the difficulties in unguided choice, and regards organized guidance as the foundation of an up-to-date apprenticeship movement.

Arbeitsmarkt. W. 35 (Jahrgang 1910).

Bechtold, F. Der volkswirt als ratgeber bei der berufswahl. In den Volkswirtschaftlichen blaettern, 1911. N. 11.

Beitraege für jugendfuersorge. Nuernberg, K. G. Fischer, 1910. (Jugendfuersorge und lehrstellenvermittlung.)

Bericht über den kaufmännischen lehrlingsnachweise der handelskammer in Bochum für 1911. (Arbeitsmarkt jahrgang 15, seite 425. Berlin W., Georg Reimer. 35.

Bericht über die taetigkeit der lehrstellenvermittlung des staedtischen arbeitsamtes Stuttgart. (Arbeitsmarkt jhrg. 15 S. 537.)

Report of the apprenticeship agency of the Stuttgart labor office from October 1, 1911, to July 31, 1912.

Die berufswahl der schulentlassenen jugend. (Sammlung) Kultur und fortschritt. Gautzsch, bei Leipzig.

This volume shows what callings pupils from the towns of Breslau, Wiesbaden, and Berlin have chosen on leaving school. The pupils not only of the board and intermediate schools but also of higher educational institutions are recorded.

Centralisierte auskunftsetelle für frauenberufe.

Berlin gives special information to the parents of girls who leave school, and to all that demand advice in these matters about vocational guidance of women, in a special office.

Deutscher ausschuss für technisches schulwesen. Berlin, Charlottenstrasse, 85.

Hahn. Die berufswahl und koerperliche anlagen. Heft II des deutschen Vereins für volkshygiene. Muenchen und Berlin, R. Oldenbourg, 1904.

The author shows the relation of physique, etc., to the vocations. Vocations for the handicapped are discussed.

Hampke, Th. (Hamburg) Lehrstellenvermittlung.

Handbuch für jugendpflege, herausgegeben von der deutschen centralstelle für jugendfuersorge. Langensalza, Hermann Beyer und söhne.

Jahresbericht des verbandes deutscher arbeitsnachweise für 1910 und 1911. Berlin, 1912.

The apprenticeship work of the Board of workmen (craftsmen) at Breslau from October, 1910, till July, 1911. Arbeitsmarkt no. 15, page 85 (S. 88).

Die jugendlichen arbeiter in Deutschland. Jena, Gustav Fischer, 1911.

Kaup. Sozialhygienische vorschlaege zur ertuechtigung unserer jugendlichen. Berlin, C. Heymann, 1911.

The most interesting chapter is the second. School medical inspection, supervision, and instruction are discussed. What England and a large number of German cities have done on this subject is described. The author pleads for the activity of the school doctor not only in behalf of pupils in school, but also when they have left it. They ought to give regular reports about the health of the pupils, and these should be an essential help in the question of life work.

Das lehrlingswesen und die berufserziehung des gewerblichen nachwuchses. Berlin, C. Heymann, 1912.

A report of the fifth conference of the Public statistical officers, July 19–20, 1912, in Elberfeld. Contains also discussions. The report is written by Dr. Altenrath, of Berlin. The address of H. Wolff, of Halle, deals with vocational guidance and agencies for apprenticeship.

Lehrstellenvermittlung und arbeitsnachweise der handwerkskammern und innungen, 1909, bearbeitet vom deutschen handwerks- und gewerbekammertag.

Levy-Rothenau, Josephine. Die deutsche frau im beruf. Praktische ratschlaege in der berufswahl. 3. auflage, Berlin, W. Moeser.

This third edition gives, like the preceding one, a good description of women's work. As the director of the board of female vocations of the German women's associations, the author has had ample opportunity to secure practical data. This book covers the range of women's vocational activities, and treats of the changes of the last few years. Besides the description of the training demanded, the length of special instruction, expenses, prospects in getting situations, there is a detailed statement of the individual demands, and the mental and physical requirements for the different vocations. This book is intended as a guide for parents, women's guidance agencies, the labor offices, agencies for procuring apprenticeships, social workers, teachers, clergymen, physicians, guardians, etc.

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Manual for the special care of youth. Ed. by the German central association for the special care of youth. (Dr. Frida Duersing.)

Contents.—Part I. (a) The young people in the country. (b) The youthful workmen in the cities and capitals. (c) The metropolitan girl of the lower class. (d) The sons and daughters of the citizens. (e) The students in the colleges and universities. (f) The school girls and grown-up daughters of the well-to-do families.

The psychology of the age of development: Its physiology; its hygiene.

The young people in the eyes of the law and the state: (a) The minor in private law (adoption; the right of guardians); the care of the orphans and professional guardianship. (b) Compulsory education. (c) The minor in the penal law. (d) The youthful idler; the vagabond. (e) The minor in the law of trade. (f) Service in the army and navy. (g) The law about unions.

The youth in economic life: (a) The youth as a part of the population; statistics of births, deaths, immigration. (b) The young people as a national asset; the cost of degeneration; the cost of infant mortality. (c) The adolescents in working life; conditions. (d) Vocational guidance based on statistics and school reports.

Training: (a) Pedagogy of the age of transition. (b) Aims, principles, and problems of training of the men and women of the higher classes. (c) The same of the middle and lower classes.

Part II. The special care of youth and its aims: (a) Unions of youth and homes for youth. Example—The union of apprentices and assistants of Hammerbrook. The Wartburg union of Frankfort, M. (Jugendpflege). Special care of the youth of the Protestant church parish, Kupper, O. L. The Girls' friendly society, Rotenburgsart (Hamburg). The Girls' congregation and the Girls' school for further instruction in Hochnenkuer, etc. (b) Special care (Jugendpflege) for the youth in primary and in continuation schools. Example—The clubs of Berlin for the youth (Schneidemuhl, Krefeld). (c) Special care for youth in the largest manufactories (Grohsindustries). Examples—Special care of youth in dye factories (Fr. Bayer & Co. at Leverkusen, near Mukelheim on the Rhine). (d) Special care for youth in vocational organizations. Examples—Adolescents of the German national union of the assistants of commerce. (e) Other youth organizations. Examples—Special care for youth at Oberrealschule in Mukelheim and the Ruhe river. (f) Special care for youth in the administrative districts of the state. Example—Special care for the youth of the town of Govlitz-Gilesia.

Part III. Duties in the special care of youth: (a) Religious and moral care for youth. (b) Culture of youth; the theater of youthful actors and for youth; good music in boys' clubs; visits to museums, etc. (c) Scientific instruction; special classes and teaching. (d) Exercises in manual skill. (e) Evenings for pleasure, conversation, and other recreation: 1. Bodily exercises—Games, gymnastics, sports. 2. Sports—Rowing, sailing, swimming, rescuing, cycling, skating, winter sports. 3. Walking, military games, dancing, Dalcreze (Dresden) exercises. (f) Vocational guidance—labor offices. (g) Offices for apprenticeships.

Mischler. Aid for apprentices. Special publications of the Labor exchange magazine. Wien, 1911.

The author shows how the town of Gratz (Steiermark) has carried out the idea of joining the agency of training apprentices with the Labor exchange.

Programm der gewerbe- und handelsschule fuer maedchen in Cassel.

This school prepares girls for trade, household duties, commerce, and for governess examinations. It places the pupils who leave school.

Soziale praxis. Berlin, W. Duncker und Humblot.

Gives numerous papers on vocational guidance. No. 20 contains two essays on advising adolescents (minors) in England. German title—Abhandlung ueber die beratung der jugendlichen bei der berufswahl in England.

Tauch. Das gewerbliche lehrlingswesen in Deutschland seit dem zukrafttreten des handwerkergesetzes vom 26. Juli 1897, mit besonderer beruecksichtigung Badens. Freiburg, Herdersche verlagshandlung, 1911.

In a general sketch of apprenticeship a chapter is devoted to cooperation in placement work, and vocational guidance; labor exchange officers are criticized for lack of personal relation to the parents and young people with whom they come in contact.

Wolff. Elternsprechstunde und berufswahl der Stadt Halle a. S. Heft 2 O. S. 87.

These papers show how the town of Halle provided consulting hours for parents; report on progress is given. In the annual statistical reports in Halle details are regularly reported as to the age, sex, schooling, and vocational plans of those who seek advice.

Zucker, Gertrude. . (Charlottensburg) Die beratung bei der berufswahl mit besonderer beruecksichtigung der weiblichen jugend.

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No. 54. Consular reports on industrial education in Germany.
No. 55. Legislation and judicial decisions relating to education, October 1, 1909, to October 1, 1912, James C. Boykin and William R. Hood.
No. 56. Some suggestive features of the Swiss school system. William Knox Tate.
No. 57. Elementary education in England, with special reference to London, Liverpool, and Manchester. I. L. Kandel.
No. 58. Educational system of rural Denmark. Harold W. Foght.
No. 59. Bibliography of education for 1910–11.
No. 60. Statistics of State universities and other institutions of higher education partially supported by the State, 1912–13.

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No. 1. Monthly record of current educational publications, January, 1914.
No. 2. Compulsory school attendance.
No. 3. Monthly record of current educational publications, February, 1914.
No. 4. The school and the start in life. Meyer Bloomfield.

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UNITED STATES BUREAU OF
BULLETIN, 1914, NO. 6

KINDERGARTENS IN THE UNIT

STATISTICS AND PRESENT PROB

WASHINGTON
GOVERNMENT PRINTING OFFICE
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"FOLLOW MY LEADER."

This rhythmic march gives to every child in turn the privilege and responsibility of leadership.

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UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1914, NO. 6 - - - - - - - WHOLE NUMBER 577

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, October 20, 1913.

SIR: The interest in the kindergarten for young children has, within the last 25 years, extended to all parts of our country. In a large proportion of our cities and towns the kindergarten has become recognized as an important part of the public-school system. Within the decade from 1902 to 1912 the number of kindergartens in the United States increased from 3,244 to 7,557, and the number of children enrolled in those reporting to this bureau increased from 205,432 to 353,546, a gain of 133 per cent in the number of kindergartens and of 72 per cent in the number of enrolled children reported. The proportion of kindergartens supported by public-school funds as a part of the public-school system has increased very rapidly in recent years, the number of public kindergartens for 1912 being 6,563, or 87 per cent of the total, and the number of children enrolled in these public kindergartens being 301,327, or 88 per cent of the total number of enrolled children reported. The total number of kindergarten teachers reported in 1912 was 8,856.

A form of education so widespread as this, and enlisting the services of so many people, deserves careful and thorough investigation by this bureau, and such investigation it hopes to be able to make some time soon. In the meantime, I recommend that the accompanying manuscript, containing kindergarten statistics for the year ended June 30, 1912, and the carefully prepared opinions of the large number of people whose experience makes their opinion on this subject valuable, be published as a bulletin of the Bureau of Education for distribution among school officials, kindergartners, and others directly interested in the subject.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

To the SECRETARY OF THE INTERIOR.

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KINDERGARTENS IN THE UNITED STATES.

I. INTRODUCTION.

The survey of the status of kindergartens in the United States for the school year 1911–12 was made with the idea of gathering together quantitative facts. The question-forms, therefore, asked chiefly for returns in figures, and these will be found summarized and tabulated in the statistical section of this bulletin. Figures are significant if read back into the setting from which they were taken, and interpreted in relation to their context; they are rich material to one who makes a rich use of them, but void otherwise. The statistics given in Section II should accordingly be read with direct reference to the material presented in the other sections, particularly the opinions of superintendents, primary supervisors, and grade teachers in different cities.

It is interesting to note the numerical extension of public kindergartens and all other kinds of kindergartens at the close of June, 1912, particularly in comparison with the figures obtained by the Bureau of Education in 1902, and published in the Commissioner's Report for that year. These figures showed a total of 3,244 kindergartens, with an enrollment of 205,432 children. The census of 1900 gave a population of 3,639,583 children between 4 and 6 years of age, so that a little more than 5 per cent of the children between the ages of 4 and 6 were receiving kindergarten training in 1902. Ten years of growth resulted in 7,557 kindergartens with an enrollment of 353,546 children. The census of 1910 gives a population of 4,150,315 children between 4 and 6 years of age. In 1912, therefore, approximately 9 per cent of the children of kindergarten age were in kindergartens.

This sort of computation, however, is akin to standing a little child against the kitchen door and measuring his height every six months, and letting him triumphantly view the new scratch which shows how he is "growing." But no series of ascending scratches can record the development of the little child's mind and power. The kitchen-door measurements are obvious and tangible, but significant only when taken in connection with the evidences of increasing intelligence and power of adjustment.

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In like manner, the tables of statistics presented are not an end in themselves, but a means to an end, and the purpose of the Bureau of Education is to use the numerical survey as a point of vantage from which to carry on constructive work for more kindergartens and better kindergarten training schools, better quality of teachers, and better organization of the kindergarten as a necessary part of the system of public education.

That much constructive work must be done is a truism which impresses itself with increasing strength upon those who watch the signs of the times. The steady advance of kindergartens and of the kindergarten idea which is permeating the grades is an element which requires careful consideration and handling. The child of kindergarten age is so young, so impressionable, so incapable of defending himself against the faulty words and actions and mental attitudes of teacher, that means must be devised to eliminate or at least diminish the number of faulty teachers. Standards of requirements as to personality and academic and professional training must be raised and maintained, for the surest guarantee of the extension of kindergartens is good work done by good teachers. Any other method is fictitious, or has a merely inflated value.

City superintendents, in response to inquiries as to the value of the kindergarten as part of the public-school system, make it plain that both the quantitative and qualitative success of the kindergarten is due to the excellence of the teacher. Furthermore, a particular training school is sometimes mentioned as maintaining standards which are regarded as an assurance of excellent quality of work on the part of its graduates.

While the question-form employed in conducting this survey asked chiefly for numbers, and the replies came back in terms of numbers, they were freighted in many cases with unintended revelations. From the intended, as well as from the unintended, responses may be drawn several conclusions or at least tentative inferences. A casual glance at the tables of statistics will show the facts about kindergartens in so far as those facts are uniform and capable of being reduced to columns. The location, the number of persons involved either as teachers or taught, the sums of money expended, all these items tell a tale of conformity to certain practices. They reveal the distribution of the expected factors.

It is in the nonconforming details that the unexpected factors come to light and present variations in organization and practice. These variations make some real contributions to the kindergarten situation as a whole; they testify to the flexibility of the kindergarten and to the truth that, though principles remain eternally fixed, they must be adapted to the peculiar needs of particular communities and groups of children.

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In the first place the many varieties of types of kindergartens are noteworthy:

(*a*) Kindergartens that are part of the public-school system.

(*b*) Kindergartens in parochial schools (Roman Catholic and German Lutheran).

(*c*) Kindergartens supported partly by a local kindergarten association and partly by the board of education.

(*d*) Kindergartens supported entirely by donations made through a local kindergarten association.

(*e*) Kindergartens supported by a church as part of its missionary activities.

(*f*) Kindergartens maintained as part of social settlement schemes.

(*g*) Kindergartens maintained by manufacturers and mill owners as part of their social welfare work.

(*h*) Kindergartens maintained in orphanages and day nurseries.

(*i*) Kindergartens maintained in schools for physical defectives, for mental defectives, or subnormal children.

(*j*) Private kindergartens either as part of a private school or as a separate institution.

(*k*) Kindergartens in universities and colleges which give courses in science of education, and in State normal schools. In these kindergartens, which may be regarded as laboratories, the students in training have opportunities for observation and practice teaching.

In the foregoing classification may be traced the historical development of kindergartens in our country. First, there were private kindergartens, regarded as more or less of a luxury for the children of well-to-do people. Next, good men and women began to provide "charity" kindergartens for the poor and neglected children; churches, settlements, kindergarten associations, and mill owners gave and continue to give glad and generous support to such kindergartens. Third, as a direct outgrowth of the work of the kindergarten associations, there have evolved training schools for young women, established primarily to fill an immediate need, and continued since because they have become their own excuse for being. Fourth, the State legislature has been induced to pass a bill making it legal to institute public-school kindergartens. Fifth, local boards of education have partially, then entirely, taken over the care and education of little children. And sixth, the State and city normal schools have incorporated the kindergarten training schools, making them into a regularly integrated department.

Thus the path of progress has been from private philanthropy toward a broader sense of social relationships, which realizes that the State should be the true nurturing agency; that a country like America, in which the ideals of democracy obtain, should, of all

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countries, be the one to provide for every stage of education from babyhood up.

Thus, too, it will be seen that the nurturing, maternal aspect of education is stressed in the kindergarten, and its flexibility in the direction of teaching after a motherly fashion is evidenced by its adoption into day nurseries, orphanages, schools for physical and mental defectives, etc. In other words, wherever a child is so circumstanced that he is living a fraction of a life, the kindergarten is needed to supply some of the missing portion. No wonder then that mother-hearted women are always behind the formation of associations and clubs and boards whose aim it is to extend kindergartens.

On the other hand, the scientific aspect of kindergarten education is strongly accented in what may be termed "laboratory" kindergartens, which are maintained in connection with normal schools and colleges and universities in which the science of education is part of the curriculum. The child-study phase of psychology has turned the attention of educators increasingly to the necessity of providing opportunities for first-hand experiences with children. In "laboratory" kindergartens, students of education may observe and then do practice-teaching, and thus learn how to interpret with scientific care significant expressions on the part of the children.

Between these two well-marked functions of kindergarten education, the nurturing and the scientific, the public school kindergarten stands as a mediating element, in which it is sought to provide for the children of the people the best kind of nurturing *and* scientific care, to give them the best kind of physical, mental, social, and spiritual training. According to the special needs of the particular localities in which the kindergartens are established, emphasis is placed on one or more of the phases of the training. But perhaps the most noticeable current in public-school kindergarten practice is in the direction of blending kindergarten and primary-grade work. A careful study of the footnotes to the statistical tables makes it plain that the problem is a very real one.

It is in the very nature of things that the public school should tend to mold whatever it adopts out of life into a uniform cast. The kindergarten offers resistance to such molding, and yet its supporters wish it to belong to the system of public education, belong in reality as well as in name. To preserve the distinctive character which glorifies the kindergarten without allowing that distinctiveness to isolate it is the difficult task.

The grades are conscious of the liberating influence which has emanated from the kindergarten; at the same time the first grade particularly calls earnestly to the kindergarten to help make adjustments which will do away with the abrupt change the child feels in passing from the free atmosphere of the one into the more circumscribed

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surroundings of the other. Evidence is not wanting that such adjustments are in the making. For instance, in some school communities the number of elementary grades is nine instead of the customary eight, made so by a subprimary class which is a mixture of kindergarten and first-grade work and which admits children at five years of age. In other communities the two sessions-a-day practice prevails; in some cases the same children attend both morning and afternoon sessions, having "pure" kindergarten work in the morning and "beginning" first-grade work in the afternoon; or, again, the kindergarten children are divided into two groups, A and B; in the morning A and B both attend and have pure kindergarten; in the afternoon group B only will return for first-grade work.

In some cities the kindergarten is arranged on a basis of semiannual promotions, and the children spend the first twenty weeks of the year in kindergarten and the last term in first-grade preparatory work. In some places the age at which the children must leave kindergarten is fixed at 6 or 7 but in the majority of cases it will be noticed that no rigid ruling is made, the degree of development of the individual child being the determining factor in his promotion from kindergarten to first grade. This is as it should be, although there is danger that through misplaced sentiment on the part of the teacher or mother a child may sometimes be retained in the kindergarten longer than is right and wholesome.

The increasing number of two-session-a-day kindergartens in city public-school systems is working many changes in the distribution of the kindergarten teacher's time. Where a morning session only is the rule, the teacher usually spends her afternoon visiting the homes of her children, holding mothers' meetings, and attending classes for further study and self-improvement. Her opportunities for widening and enriching her experiences are plentiful. Where the double-session rule prevails, nearly all her time is bestowed directly on the children, and she is thus enabled to give herself to twice as many little people as she could touch under the former arrangement, while her social and neighborhood work is given over more and more to medical inspectors, school nurses, mothers' clubs, and parent-teacher associations. It is still an open question as to how the gain and loss will balance up. One city that has tried two sessions as an experiment is returning to one session.

Those who are watching the trend of school practice can not yet decide whether the kindergarten teacher stands in peril of losing just that quality which has been so potent a factor in modifying school theory and school practice. That quality, not easily described, grows out of the motherly, nurturing character of the kindergartner's work. It is not "an artificial pose of motherhood," but a genuine necessary element of the teaching relationship, lacking which all

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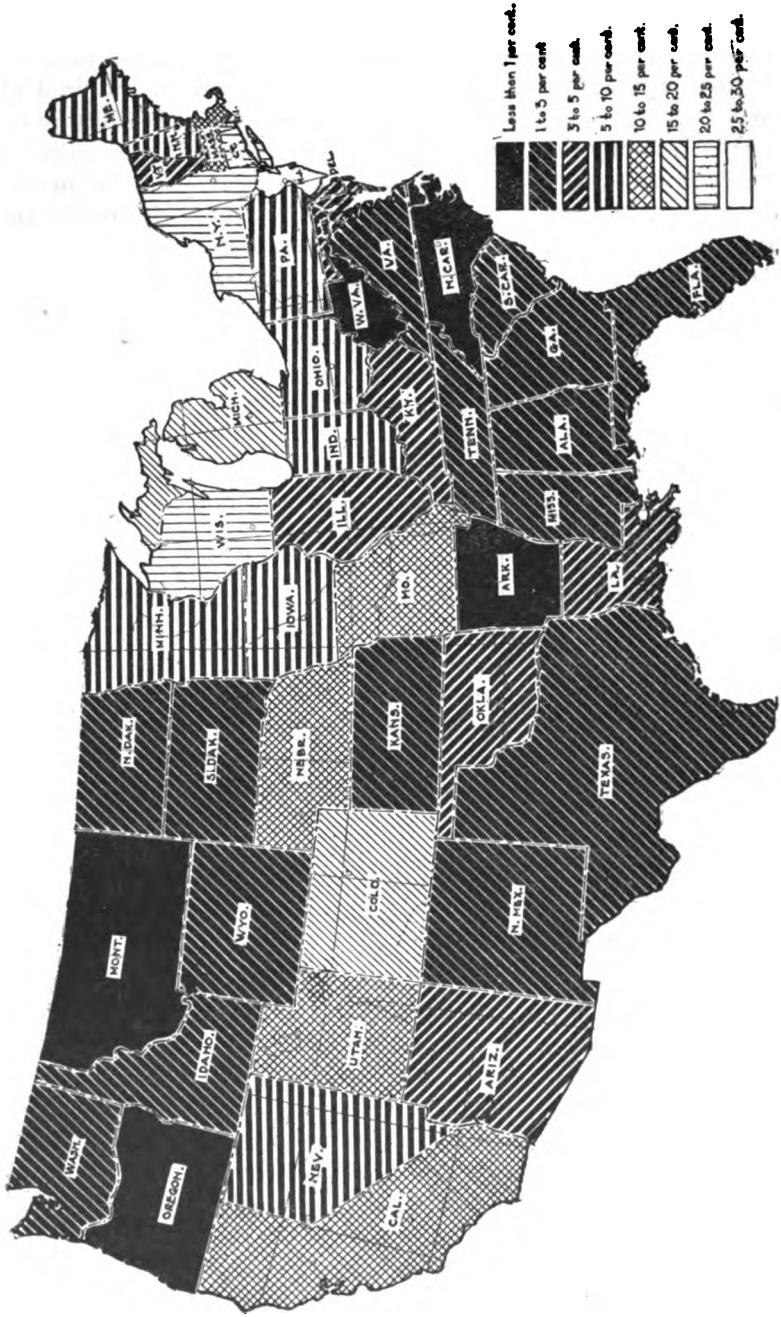

THE KINDERGARTEN IN THE UNITED STATES, 1912.

Percentage of children enrolled in kindergartens as compared with total number of children between the ages of 4 and 6.

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teaching becomes flat, dull, inert. Scientific it may be, but it fails to be humanized.

There are three large organizations in the country whose members seek to preserve and extend the essential spirit of the genuine kindergarten—the International Kindergarten Union, the National Congress of Mothers, and the National Kindergarten Association.

The International Kindergarten Union has for 20 years not only guarded carefully the standards of good work, but has advanced those standards toward higher and still higher levels. The International Kindergarten Union endeavors to see to it that the kindergarten training schools try to interest an increasingly better type of young womanhood in the vocation of kindergarten teaching, on the sound principle that in the the next period of growth everything will depend upon the character of the young women who go into new localities and represent the kindergarten; that these kindergartners must be fair and strong, full of the spirit of sacrifice and service, and at the same time possessed of excellent scholarship and a clear idea of their institutional obligations. In the successive conventions of the International Kindergarten Union the various new phases of child education are brought forward for consideration, and the discussions are carried on in a spirit of frankness and open-mindedness. As might be expected, the educational system of Dr. Montessori is receiving most thoughtful attention on the part of this body of educators, and experiments in comparing Froebelian with Montessori practices have been undertaken in several quarters. The prevailing opinion seems to be that some of the Italian system can be dovetailed into the kindergarten with distinct advantage to the children.

The National Congress of Mothers is another organization which is active in fostering the growth of kindergartens. In former days the kindergarten teacher never rested until she brought into being a mothers' meeting and by this means joined the hands of the home and the school. In these latter days the converse is taking place, and the mothers' club or parent-teacher association works ardently for the establishment of kindergartens, often undertaking to support one or more in a city until the board of education is sufficiently convinced of the value of kindergarten training to make it part of the public-school system. In this and in many other ways organized motherhood is doing genuinely creative educational work, and in its affiliations with kindred bodies of social-welfare workers a mighty force is generated that in due course of time will remove mountains of ignorance and negligence.

The National Kindergarten Association is the most recently formed of the three organizations. Its main purpose is to stimulate public interest and activity so that they will result in adequate provision for kindergarten training for every little child of the Nation. In

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other words, the association is an instrument of propaganda, and during the four years of its existence has accomplished a great deal. New lines of extension have been undertaken which are leading directly not merely to more kindergartens, but also to more efficient kindergartens.

The National Kindergarten Association is cooperating with the United States Commissioner of Education in conducting the kindergarten division of the Bureau of Education at Washington. Miss Myra M. Winchester, educational director of the association, and Miss Bessie Locke, corresponding secretary, have been appointed special collaborators of the Bureau of Education. Miss Winchester is in charge of the office in Washington and Miss Locke cooperates from the office of the association in New York.

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Number of children enrolled in kindergartens per thousand of the population between 4 and 6 years of age in 1912.

1. New Jersey—278.
2. District of Columbia—225.
3. New York—234.
4. Wisconsin—234.
5. Connecticut—221.
6. Rhode Island—213.
7. Michigan—197.
8. Colorado—154.
9. Massachusetts—132.
10. Utah—132.
11. California—129.
12. Missouri—109.
13. Nebraska—108.
14. Minnesota—97.
15. Ohio—89.
16. Indiana—88.
17. Iowa—78.
18. New Hampshire—66.
19. Nevada—63.
20. Pennsylvania—55.
21. Maine—50.
22. Louisiana—45.
23. Arizona—40.
24. Maryland—39.
25. Illinois—37.
26. Delaware—36.
27. Kentucky—35.
28. Vermont—33.
29. Oklahoma—31.
30. Florida—26.
31. Georgia—24.
32. South Dakota—22.
33. Kansas—19.
34. South Carolina—18.
35. Alabama—18.
36. Wyoming—17.
37. Tennessee—16.
38. Texas—16.
39. Virginia—15.
40. Washington—14.
41. Idaho—13.
42. Mississippi—12.
43. New Mexico—12.
44. North Dakota—10.
45. Montana—8.
46. North Carolina—7.
47. Arkansas—3.
48. Oregon—2.
49. West Virginia—1.

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II. STATISTICS.

TABLE 1.—*Summary of statistics of public kindergartens for year ended June 30, 1912.*[1]

States.	Cities having public kindergartens.	Number of kindergartens.	Number of children enrolled.	Average daily attendance.	Number of teachers.
United States	867	6,563	301,327	180,560	7,391
North Atlantic Division	311	3,108	155,908	91,010	3,558
North Central Division	454	2,780	108,187	69,118	2,851
South Atlantic Division	21	146	7,365	4,568	260
South Central Division	32	216	10,496	6,237	278
Western Division	49	313	19,371	9,627	444
North Atlantic Division:					
Maine	9	29	1,349	863	50
New Hampshire	9	30	1,086	776	48
Vermont	5	13	404	299	19
Massachusetts	35	345	17,726	11,115	564
Rhode Island	6	93	4,555	2,306	98
Connecticut	32	224	8,161	5,873	269
New York	111	1,420	78,689	40,677	1,494
New Jersey	87	542	29,064	17,740	528
Pennsylvania	17	412	14,874	11,361	498
North Central Division:					
Ohio	27	374	16,259	11,160	392
Indiana	22	137	6,041	3,704	145
Illinois	24	459	4,655	3,442	396
Michigan	119	510	22,697	13,961	545
Wisconsin	113	505	22,916	13,849	465
Minnesota	37	218	7,851	6,003	198
Iowa	52	205	7,113	5,021	190
Missouri	7	202	13,872	7,268	349
North Dakota	3	3	92	72	3
South Dakota	1	4	194	89	4
Nebraska	35	133	5,448	3,770	137
Kansas	14	30	1,049	779	27
South Atlantic Division:					
Delaware	1	1	40	24	1
Maryland	2	23	1,282	712	47
District of Columbia	1	72	3,435	2,131	137
Virginia	3	18	834	531	25
West Virginia					
North Carolina	2	6	428	198	12
South Carolina	1	1	60	45	1
Georgia	6	19	901	654	27
Florida	5	6	385	273	10
South Central Division:					
Kentucky	5	55	3,287	1,793	65
Tennessee	1	3	196	165	4
Alabama	4	27	1,015	686	36
Mississippi	7	13	534	409	14
Louisiana	6	45	2,789	1,399	105
Texas	3	13	577	323	13
Arkansas	1	1	62	55	1
Oklahoma	5	59	2,036	1,407	40
Western Division:					
Montana	1	6	130	95	6
Wyoming	4	5	172	126	5
Colorado	8	89	5,242	2,575	87
New Mexico	1	2	30	24	1
Arizona	3	4	288	121	6
Utah	5	33	1,901	1,220	40
Nevada	2	3	189	104	4
Idaho	2	2	95	59	2
Washington	3	20	414	212	9
Oregon					
California	20	149	10,910	5,091	284

[1] Acknowledgments are due to the chairman of the investigation committee of the International Kindergarten Union, for her kind cooperation with the Bureau of Education, in furnishing lists of cities in which kindergartens were found during the two years' survey made by that committee. It has thus been possible to make comparisons which bring out interesting points in both the surveys.

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TABLE 2.—*Summary of statistics of kindergartens other than public for year ended June 30, 1912.*

States.	Cities having kindergartens other than public.	Number of kindergartens.	Number of children enrolled.	Average daily attendance.	Number of teachers.
United States	412	994	52,219	31,460	1,465
North Atlantic Division	168	436	22,919	14,343	628
North Central Division	101	268	16,037	8,877	368
South Atlantic Division	52	122	5,818	3,664	199
South Central Division	56	99	4,056	2,615	128
Western Division	35	69	3,391	1,961	88
North Atlantic Division:					
Maine	6	7	247	131	12
New Hampshire	4	4	152	122	6
Vermont	2	3	108	47	5
Massachusetts	29	41	1,485	1,080	51
Rhode Island	8	10	420	324	18
Connecticut	16	48	2,395	1,836	87
New York	37	198	13,472	7,718	356
New Jersey	26	44	1,348	958	51
Pennsylvania	40	81	3,292	2,127	96
North Central Division:					
Ohio	15	41	2,157	1,551	56
Indiana	7	47	4,191	1,626	55
Illinois	15	74	4,182	2,317	106
Michigan	11	17	1,116	764	27
Wisconsin	11	14	623	366	15
Minnesota	4	10	766	435	17
Iowa	7	10	400	271	12
Missouri	9	31	1,532	891	45
North Dakota	3	5	171	129	8
South Dakota	3	3	379	175	8
Nebraska	5	5	136	106	8
Kansas	11	11	384	246	13
South Atlantic Division:					
Delaware	1	9	277	193	12
Maryland	5	15	935	590	28
District of Columbia	1	6	206	125	10
Virginia	5	9	540	358	23
West Virginia	3	3	101	68	4
North Carolina	8	9	301	211	14
South Carolina	11	24	1,161	758	33
Georgia	15	37	1,774	1,172	54
Florida	3	10	521	189	21
South Central Division:					
Kentucky	6	8	224	141	9
Tennessee	7	17	693	489	21
Alabama	9	11	692	354	18
Mississippi	8	13	467	334	16
Louisiana	3	7	447	214	11
Texas	14	32	1,145	837	42
Arkansas	4	6	207	116	6
Oklahoma	5	5	181	130	5
Western Division:					
Montana	1	1	15	13	1
Wyoming					
Colorado	3	3	81	53	3
New Mexico	3	4	149	125	4
Arizona	2	2	65	54	2
Utah	2	3	214	133	5
Nevada	1	1	35	28	1
Idaho	3	3	93	69	3
Washington	5	9	320	168	10
Oregon	4	4	84	65	4
California	11	39	2,335	1,253	55

ERRATA FOR PAGE 16.

New York State: Number of children enrolled should be 78,080.

Cities: Number of kindergartens 207, number enrolled 15,208; average daily attendance 13,456.

Totals for North Central Division should therefore read, left to right: 454, 2588, 118,8 0, 79,132, 2851; and totals for United States: 867, 6371, 311,070, 190,574, 7391.

Corrected totals cited on pages 5 and 7.

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TABLE 3.—*Cities having a supervisor of public kindergartens—Salary.*

Cities and States.	Salary.	Cities and States.	Salary.
Birmingham, Ala	$1,380	Eveleth, Minn	$950
Mobile, Ala	600	Gilbert, Minn	1,100
Los Angeles, Cal	2,400	Minneapolis, Minn	[3] 2,200
Pasadena, Cal	1,200	Natchez, Miss	[4] 675
Pomona, Cal	1,200	Kansas City, Mo	1,600
Sacramento, Cal	1,200	St. Louis, Mo	2,850
Santa Barbara, Cal	1,000	Omaha Nebr	1,550
Denver, Colo	1,600	South Omaha, Nebr	903
Hartford, Conn	800	Concord, N. H	700
New Britain, Conn	1,500	Portsmouth, N. H	700
New Haven, Conn	1,100	Atlantic City, N. J	[1] 1,600
South Manchester, Conn	750	Camden, N. J	[1] 1,800
Stamford, Conn	940	Jersey City, N. J	[1] 2,500
Washington, D. C	1,750	Kearney, N. J	[1] 1,700
Columbus, Ga	500	Newark, N. J	2,200
Columbia, Ill	1,250	Perth Amboy, N. J	710
La Grange, Ill	950	Rutherford, N. J	1,000
Moline, Ill	810	Trenton, N. J	1,350
Peoria, Ill	1,300	Albany, N. Y	1,000
Converse, Ind	[1] 1,000	Buffalo, N. Y	1,600
Evansville, Ind	1,800	Gloversville, N. Y	675
Fort Wayne, Ind	[1] 1,800	Ithaca, N. Y	[1] 1,000
Michigan City, Ind	720	New Patz, N. Y	[2] 1,000
Shelbyville, Ind	585	New York, N. Y	3,500
Terre Haute, Ind	693	Schenectady, N. Y	1,400
Des Moines, Iowa	1,450	Syracuse, N. Y	1,350
Dubuque, Iowa	850	Troy, N. Y	900
Mason City, Iowa	697	Utica, N. Y	750
Waterloo, Iowa	540	Yonkers, N. Y	1,240
Neodesha, Kans	765	Cincinnati, Ohio	1,800
Lexington, Ky	600	Cleveland, Ohio	[1] 2,640
Louisville, Ky	1,100	Dayton, Ohio	1,200
New Orleans, La	2,400	Mansfield, Ohio	450
Bangor, Me	675	Springfield, Ohio	900
Boston, Mass	1,860	Oklahoma City, Okla	1,000
Cambridge, Mass	1,350	Guthrie, Okla	675
Fitchburg, Mass	800	Philadelphia, Pa	2,500
Newton, Mass	1,000	Pittsburgh, Pa	2,500
Springfield, Mass	[1] 2,700	Scranton, Pa	1,000
Worcester, Mass	1,300	Providence, R. I	1,000
Detroit, Mich	2,100	Knoxville, Tenn	700
Grand Rapids, Mich	1,300	Forth Worth, Tex	[4] 1,000
Ironwood, Mich	650	Salt Lake City, Utah	[1] 2,250
Kalamazoo, Mich	900	Richmond, Va	[1] 2,000
Muskegon, Mich	900	Antigo, Wis	675
Ypsilanti, Mich	[2] 1,200	Kenosha, Wis	845
Chisholm, Minn	800	La Crosse, Wis	775

[1] Supervisor of kindergartens and primary grades.
[2] Principal of kindergarten department in normal school.
[3] Also assistant superintendent.
[4] Also director of one kindergarten.

TABLE 4.—*Kindergartens (other than public) having a supervisor.*

City and State.	Name of kindergarten (or supporting body).	Salary.
Huntsville, Ala	Huntsville Kindergarten Association	$810
Los Angeles, Cal	Neighborhood Settlement	([1])
San Francisco, Cal	Golden Gate Kindergarten Association	1,200
Atlanta, Ga	Sheltering Arms Association	600
Columbus, Ga	Free Kindergarten Association [2]	780
La Grange, Ga	Mill Owners—P. E. Church	([1])
Savannah, Ga	Kate Baldwin Free Kindergarten Association	1,800
Chicago, Ill	Armour Institute	1,000
Riverside, Ill	Kindergarten Extension Association	1,300
Muncie, Ind	Muncie Free Kindergarten Association	810
Saginaw, Mich	Saginaw Free Kindergarten Association	540
Brooklyn, N. Y	Brooklyn Free Kindergarten Society	1,800
New York, N. Y	Children's Aid Society	960
Do	New York Kindergarten Association	2,500
Do	St. Bartholomews	1,250
Cleveland, Ohio	Cleveland Day Nursery and Kindergarten Association	1,500
Reading, Pa	Reading Free Kindergarten Association	585
Nashville, Tenn	Methodist Training School	720
Dallas, Tex	Dallas Free Kindergarten Association	855
Houston, Tex	Houston Kindergarten Association	900
San Antonio, Tex	San Antonio Kindergarten Association	590
Norfolk, Va	Norfolk Kindergarten Association	1,000
Milwaukee, Wis	Milwaukee Mission Kindergarten and Neighborhood Association	1,000

[1] Supervisor supervises public school kindergartens and training school kindergartens. [2] Services given.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1913.*[1]

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.[1]	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
ALABAMA.																	
Birmingham	132,685	5,705	[2] 18	715	177	475	6	7	19	$900	$600	.....	.....	1	.....	1903	High-school graduation; 2 years' kindergarten training.
Enterprise	2,322	100	1	50	177	[3] 35	(4)	(4)	[3] 2	(4)	(4)	.....	.....	1	.....	(4)	(4)
Gadsden	10,557	454	1	35	178	23	5	7	1	495	.....	.....	.....	1	.....	1911	Graduation from recognized kindergarten training school.
Mobile	51,521	2,215	7	215	162	[3] 153	4	6	14	480	400	.....	[5] $120	1	.....	1902	Graduation from approved kindergarten training school.
ARIZONA.																	
Bisbee	9,019	388	1	75	180	42	4	6	1	810	.....	.....	.....	2	Yes...	1906	Graduation from State normal; special work.
Flagstaff	1,633	70	1	32	195	24	4	[6] 6	1	700	.....	.....	.....	1	.....	1905	Examination for kindergarten graduation.
Prescott	5,092	219	2	181	200	55	4	[6] 6	4	850	750	$250	250	1	.....	1900	Graduation from normal school or equivalent.
ARKANSAS.																	
Bentonville	1,956	84	1	62	175	55	4½	6	1	450	270	.....	.....	2	Yes...	(4)	(4).

[1] It must be borne in mind that wherever two-sessions-a-day kindergartens are reported with a different group of children attending each session the total number of kindergartens in that city is reckoned according to the number of sessions, not according to the number of buildings or rooms. This plan of reckoning is based on the argument that the ordinary unit of kindergarten administration is one session, one group of children, one room, one set of teachers. Therefore the addition of a second session and a second group of children, even though the same room is used and charge given to the same teacher or teachers, constitutes an additional kindergarten.

[2] Supported by association up to July.

[3] Estimated.

[4] No data.

[5] For musician.

[6] Not fixed; depends on development.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CALIFORNIA.																	
Corning	972	41	1	37	161	19	4½	6	1	$600	$600	.....	.....	1	.....	(1)	Kindergarten and primary certificate.
Coronado	1,477	63	1	54	194	28	4	6	2	960	720	.....	.....	1	.....	1901	Graduation from training school approved by State board.
Fresno	24,892	1,070	1	89	180	56	4	6	2	700	600	$600	$600	1	.....	1900	State requirements.
Long Beach	17,809	766	8	572	171	245	4	(2)	15	750	700	600	550	1	Yes[3]	1909	Graduation from 2 years' kindergarten course.
Los Angeles	319,198	13,725	74	6,276	184	2,891	3½	6	148	960	720	840	600	1	Yes[3]	1878	Graduation from high school and 2 years' kindergarten training school.
Oakland	150,174	6,457	3	203	191	92	5	(2)	3	1,200	780	.....	.....	1	.....	1892	Same as elementary teacher; kindergarten training.
Oxnard	2,555	110	1	43	195	21	4½	6	1	850	850	.....	.....	1	.....	1905	Credits approved by State board.
Pasadena	30,291	1,302	12	524	170	317	4½	6	27	840	780	720	660	1	Yes[3]	1901	Graduation from California accredited normal school.
Pomona	10,207	439	6	387	178	201	4	6	13	780	720	660	600	1	.....	1890	Do.
Redlands	10,449	449	3	[4]75	180	52	5	6	3	780	600	.....	.....	1	.....	1906	Graduation from California kindergarten training school.
Redondo Beach	2,935	126	1	68	97	38	4	6	1	375	.....	.....	.....	1	.....	1912	Graduation from normal school.
Riverside	15,212	654	2	125	180	68	5	(2)	4	744	.....	480	.....	1	.....	1895	Certificate under State law.
Sacramento	44,696	1,922	12	860	185	289	4	6	23	840	840	660	660	1	.....	1895	Two years' training; 1 year of teaching.
San Diego	39,578	1,701	6	805	189	320	5	6	17	804	804	360	360	1	.....	1891	State requirements for director; none for assistants.
San Francisco	416,912	18,027	2	70	209	25	4	6	1	840	.....	.....	.....	2	Yes...	1909	Certificate on credits prescribed.
Santa Ana	8,429	362	4	170	175	124	4	6	8	720	540	360	225	1	.....	1902	Graduation from accredited school.
Santa Barbara	11,659	501	6	280	190	138	4	6	8	750	.....	650	.....	1	.....	1895	(1)
South Pasadena	4,649	200	3	138	175	100	4	6	4	675	390	.....	300	1	.....	1911	Kindergarten graduation certificate.
Ventura	2,945	126	2	92	196	45	4	6	2	762	.....	.....	.....	1	.....	1905-6	Kindergarten normal training.
Woodland	3,187	136	1	42	183	22	4	6	1	700	700	.....	.....	1	.....	1892	Graduation from approved kindergarten training school.

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COLORADO.																	
Buena Vista	1,041	44	1	30	180	25	5	[4]6	1	675	.....	.....	.....	2	Yes...	1898	Special training.
Colorado Springs	29,078	1,250	7	400	190	210	5	(1)	8	800	600	600	500	1	.....	(1)	Graduation from kindergarten training school.
Denver	213,381	9,175	68	4,095	182	1,968	4	[4]6	66	960	744	672	600	2	Yes...	1893	Graduation from high school and normal school.
Fort Collins	8,210	353	4	199	175	[4]149	4	6	4	900	675	750	600	2	Yes...	(1)	Graduation from training school.
Grand Junction	7,754	333	2	108	190	66	5	6	2	807	712	712	617	2	Yes...	1902	Graduation from kindergarten training school.
La Junta	4,154	178	2	75	178	50	4	6	2	675	450	630	450	2	Yes...	1900	Normal school diploma.
Pueblo	44,395	1,908	3	234	190	43	5	(3)	3	850	550	300	100	1	.....	1906	Graduation from training school.
Telluride	1,756	75	2	101	181	64	4	6	1	807	807	.....	.....	2	Yes...	1903	Graduation from normal; special kindergarten training.
CONNECTICUT.																	
Bridgeport	102,054	4,388	4	377	184	224	3½	5	4	750	500	.....	.....	2	Yes...	1908	Graduation from high school; 2 years' successful kindergarten experience.
Bristol	13,502	580	8	353	178	194	4	6	5	525	450	475	450	2	Yes...	1892	(1)
Darien	3,946	170	2	50	200	37	5	6	2	600	450	.....	.....	2	Yes...	1908	Graduation from approved kindergarten training school.
East Haven	1,795	77	1	46	178	22	4	(2)	1	(5)	.....	.....	.....	2	Yes...	1911	Two years' course in kindergarten training school.
East Windsor	3,362	144	1	35	180	28	4	(2)	1	407	370	.....	.....	2	Yes...	1910	(1)
Essex	2,745	118	2	45	180	39	4	(2)	2	475	.....	.....	.....	1	.....	(1)	Normal training or registered school.
Greenwich	16,463	707	8	205	188	113	4	[2]6	4	750	500	.....	.....	[3]1	Yes...	1905	Graduation from kindergarten training school.
Groton Borough	6,495	279	1	73	180	42	4	7	2	450	270	.....	.....	1	.....	1898	Normal school diploma.
Hartford	98,915	4,253	16	[4]640	(1)	[4]420	(1)	(1)	55	(1)	.....	.....	.....	1	.....	1892	Normal or special training.
Jewett City	3,023	130	1	30	192	21	4	6	1	480	.....	.....	.....	2	Yes...	1910	(1)
Manchester	13,641	586	2	40	185	[4]30	4½	(1)	1	432	.....	.....	.....	2	.....	1911	Graduation from normal school.
Meriden	32,066	1,378	11	500	183	[4]375	4	(2)	13	720	480	.....	.....	[3]1	Yes...	1903	High school graduation; normal school graduation.
Milford	4,366	187	1	58	182	30	4½	6	1	475	351	114	114	2	Yes...	1900	Graduation from kindergarten preparatory school.
Naugatuck	12,722	547	6	279	188	159	3	6	5	600	400	600	400	1	.....	1899	High school diploma; training school diploma.
New Britain	43,916	1,888	20	687	173	474	5	6	15	840	540	840	540	2	Yes...	1896	Normal diploma.
New Haven	133,605	5,745	50	1,950	195	[4]1,461	4	6	44	750	450	700	450	2	Yes...	1890	High school graduation; kindergarten training school graduation.
New London	19,659	846	5	260	180	35	5	6	10	500	500	350	350	1	.....	1889	Normal school training.
Norfolk	1,541	66	1	28	181	16	4	6	1	550	450	.....	.....	1	.....	1901	Graduation from kindergarten training school.
Norwalk	24,211	1,041	6	[4]300	189	[4]225	3½	(2)	14	290	.....	285	.....	2	Yes...	1912	Graduation from kindergarten school.
Norwich	28,219	1,213	10	(1)	180	(1)	3	6	14	650	450	500	250	1	.....	1892	Normal kindergarten course.
Old Lyme	1,181	50	1	17	180	11	4	6	1	462	400	.....	.....	1	.....	[6]1906	Normal kindergarten training.
Plainville	2,882	123	1	64	186	27	4	6	2	500	440	200	180	1	.....	1896	Normal school certificate.
Plymouth (Terryville)	5,021	215	3	145	183	90	4	6	3	456	399	190	95	2	Yes...	[6]1893	Graduation from normal school.

[1] No data.
[2] Not fixed; depends on development.
[3] In some cases two sessions.
[4] Estimated.
[5] Salary same as grade teachers.
[6] Approximate.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CONNECTICUT—contd.																	
Putnam	7,280	313	1	52	106	40	4	7	2	$494	$494	$304	$304	1	.....	1902	Kindergarten normal graduation.
South Manchester	7,000	301	4	254	186	[1] 190	4	6	5	650	400	.....	.....	[2] 1	Yes...	1890	Graduation from normal training school.
Stafford	5,233	225	2	75	180	50	3½	6	2	432	252	252	252	2	Yes...	1901	Special training.
Stamford	28,836	1,239	14	[1] 744	189	478	4	(2)	22	900	480	350	250	2	Yes...	(4)	Approved normal.
Stonington	9,154	393	7	186	185	[1] 148	5	6	4	468	390	.....	.....	2	Yes...	(4)	Two years' training.
Wallingford	11,155	479	8	254	180	128	4	5½	4	575	575	575	575	[2] 1	Yes...	(4)	Graduation from training school.
Waterbury	73,141	3,145	23	878	196	[1] 657	4	5½	24	800	450	700	450	2	Yes...	1902	High school graduation; normal school graduation.
West Haven	8,543	367	2	50	190	46	5	6	1	600	400	.....	.....	2	Yes...	1908	High school and kindergarten graduation
Winsted	7,754	333	2	106	183	64	5	(2)	4	650	450	300	250	1	.....	(4)	Graduation from high school; graduation from kindergarten training school.
DELAWARE.																	
Newark	1,913	82	1	40	192	24	5	7	1	425	.....	.....	.....	1	.....	1910	Teacher's certificate and 1 year of practical work.
DISTRICT OF COLUMBIA.																	
Washington	331,369	14,235	72	3,435	179	2,131	5	6	137	900	650	600	500	1	.....	1898	High school graduation or equivalent; normal graduation.
FLORIDA.																	
Daytona	3,082	132	1	56	160	29	4	6	2	480	320	.....	.....	1	.....	1907	High school graduation, kindergarten diploma.
Miami	5,471	235	2	90	159	76	4	6	2	480	320	320	240	1	.....	1909	Graduation from kindergarten training school.
St. Petersburg	4,127	177	1	140	160	95	4	6	3	800	500	600	400	2	Yes...	1904	Normal graduation.
Tallahassee	5,018	215	1	45	159	[3] 33	3	6	1	400	.....	.....	.....	1	.....	(4)	Diploma.
West Palm Beach	1,743	74	1	54	160	40	4	[3] 6	2	720	560	.....	.....	1	.....	1906	Graduation from kindergarten training school; experience.

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GEORGIA.																
Athens	14,913	641	2	95	173	36	4	6	2	540	420	.....	.....	1	.....	[5] 1905	Training in approved school.
Augusta	41,040	1,764	6	300	180	250	5	6	12	720	480	540	360	2	Yes...	1891	High school diploma, or normal and certificate of training school.
Columbus	20,554	883	8	393	175	[5] 294	4	6	10	400	260	.....	.....	1	.....	1905	Graduation from high school; 2 years' kindergarten training.
[6] La Grange	5,587	240	1	45	175	26	4	7	1	540	.....	.....	.....	1	.....	1911	Graduation from kindergarten normal.
Sandersville	2,641	113	1	28	164	23	4	7	1	360	.....	.....	.....	1	.....	[4]	Normal school diploma.
West Point	1,906	81	1	40	180	25	3	7	1	675	.....	.....	.....	1	.....	1900	Normal training.
IDAHO.																
Lewiston	6,043	259	1	70	174	38	5	6	1	[6] 765	.....	.....	.....	([4])	.....	[4]	([4])
Mountainhome	1,411	60	1	25	180	21	5	7	1	765	720	.....	.....	1	.....	1910	College education or equivalent.
ILLINOIS.																
Benld	1,912	82	1	110	178	73	6	7	1	450	450	.....	.....	2	Yes...	[4]	Second grade county certificate.
Berwyn	5,841	251	4	160	196	140	4	6	8	500	350	350	.....	1	.....	1897	Graduation from kindergarten college.
Chicago	2,185,283	93,967	192	11,825	190	11,237	4	6	292	1,175	650	.....	.....	2	Yes...	1896	Graduation from high school; graduation from kindergarten normal.
Chicago Heights	14,525	624	1	100	197	43	6	([3])	2	750	500	500	500	2	Yes...	1911	Same as elementary teacher; kindergarten training.
Columbia	2,076	89	1	44	181	39	5½	7	1	540	.....	.....	.....	1	.....	[4]	Best available.
Evanston	24,978	1,074															
District 75	.....	.....	6	334	190	167	5	6	12	600	450	400	350	1	.....	1892	High school diploma; kindergarten training.
District 76	.....	.....	2	149	190	101	4	6	4	800	600	400	400	2	Yes...	1895	Graduation from kindergarten college.
Glencoe	1,899	81	1	73	186	35	4	6	2	675	.....	550	.....	1	.....	1897	Graduation from high school; graduation from kindergarten training school.
Jacksonville	15,326	659	1	60	180	35	4	6	1	585	.....	.....	.....	1	.....	[4]	Graduation from kindergarten college.
Kenilworth	881	37	1	[5] 42	179	24	4	6	1	500	500	.....	.....	1	.....	[5] 1895	([4])
La Grange	5,282	227	5	293	190	200	4	6	6	700	500	400	250	1	.....	1905	Graduation from kindergarten training school.
Lake Forest	3,349	144	2	80	185	60	4	6	3	925	500	.....	.....	2	Yes...	1902	Graduation from high school, kindergarten normal.
Moline	24,199	1,040	18	467	177	309	[6] 5	[6] 6	18	675	450	360	315	2	Yes...	1903	Kindergarten school graduation.
Morgan Park	3,694	168	2	103	196	56	4	[6] 6	2	800	600	.....	.....	2	Yes...	1891	Graduation from approved kindergarten training school.
Peoria	66,950	2,878	15	735	188	427	4	6	22	850	450	750	450	1	.....	1897	Graduation from high school; 2 years' training and practice.
Prophetstown	1,083	46	1	44	195	39	6	([3])	1	675	.....	.....	.....	1	.....	[4]	([4])
Quincy	36,587	1,573	1	45	185	25	5	6	1	650	.....	.....	.....	2	Yes...	1907	Same as regular teachers.
River Forest	2,456	105	2	68	187	50	4½	6	3	550	400	250	200	1	.....	1900	Graduates.
Riverside	1,702	73	1	48	183	33	4	6	3	712	.....	.....	427	1	.....	[4]	Very high.
Silvis	1,163	50	1	50	180	37	5	7	1	585	.....	.....	.....	2	Yes...	1908	Same as primary teachers.
Toluca	2,407	103	1	134	170	93	4	([3])	2	405	405	.....	.....	2	Yes...	[4]	([4])
West Hammond	4,948	212	2	69	196	30	4	6	2	650	650	350	350	2	Yes...	1909	Graduation from kindergarten college.
Western Springs	905	38	2	35	189	28	4	6	1	800	650	800	650	2	Yes...	1907	Do.
Wilmette	4,943	212	2	105	190	67	5	6	4	550	400	350	250	1	.....	1901	Do.
Winnetka	3,168	136	2	125	186	108	4	[6] 6	3	750	.....	.....	.....	1	.....	1898	Do.

[1] Estimated. [2] In some cases two sessions. [3] Not fixed; depends on development. [4] No data. [5] Approximate.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
INDIANA.																	
Attica	3,335	143	1	47	173	31	5	7	1	$450	.....	.....	.....	1	.....	1892	High-school graduation; kindergarten training school graduation.
Columbus	8,813	378	2	80	180	55	4	6	2	585	$405	.....	.....	1	.....	1899	Graduation from kindergarten training school.
Converse	1,164	49	1	53	157	50	5	8	1	560	360	.....	.....	2	Yes...	1900	College course.
Crawfordsville	9,371	402	3	60	178	45	4	6	6	653	612	$225	$180	1	.....	1911	Special kindergarten training, 2 years.
East Chicago	19,098	821	7	276	190	173	4	6	8	850	650	350	300	2	Yes...	1900	High-school graduation; kindergarten school graduation.
Evansville	69,647	2,994	12	721	185	530	5	6	12	700	465	400	400	2	Yes...	1902	Graduation from kindergarten college.
Fort Wayne	63,933	2,749	10	511	192	282	5	6	14	750	500	550	400	[11]	Yes...	1899	High-school graduation; kindergarten college graduation.
Gary	16,802	722	5	613	196	([2])	4	6	7	900	600	.....	.....	2	Yes...	1907	Two years kindergarten training following 4 years' high school.
Hammond	20,925	899	14	461	190	258	4	6	13	760	570	475	475	2	Yes...	1893	High-school graduation; kindergarten training school graduation.
Huntington	10,272	441	2	72	178	41	5	[3]6	2	630	.....	270	.....	2	Yes...	1911	Graduation from 2 years' kindergarten course.
La Porte	10,525	452	3	230	190	162	5	6	4	712	598	646	522	1	.....	1886	Graduation from kindergarten college or license.
Madison	6,934	298	2	58	180	41	5	6	1	[4] 630	.....	.....	.....	2	Yes...	1908	Graduation from approved kindergarten training school.
Michigan City	19,027	818	7	299	175	197	4½	6	7	595	423	.....	.....	1	.....	1902	Do.
Mishawaka	11,886	511	3	139	178	106	4½	6	6	675	450	.....	.....	1	.....	1907	Two years' kindergarten training.
Richmond	22,324	959	8	405	186	208	4½	[3]6	8	675	675	.....	.....	1	.....	1895	High-school graduation; kindergarten college graduation.
Shelbyville	9,500	408	5	135	180	100	4	6	2	450	450	.....	.....	2	Yes...	1901	Two years' special preparation.
South Bend	53,684	2,308	14	[4] 700	175	600	5	6	28	648	585	630	540	1	.....	1898	Graduation from kindergarten school.
Terre Haute	58,157	2,500	29	683	190	537	5	6	15	655	565	.....	.....	1	.....	1911	License.
Valparaiso	6,987	300	1	69	87	45	4½	6	1	450	.....	.....	.....	1	.....	1892	High-school diploma or equivalent.

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Vincennes	14,895	640	4	227	180	145	4	6	3	585	450	.....	.....	1	.....	1900	Graduation from kindergarten training school.
Whiting	6,557	283	2	104	192	60	4	6	2	800	.....	600	.....	2	Yes...	1900	Graduation from good school.
Winchester	4,266	183	2	97	180	38	4	6	2	623	617	.....	.....	2	Yes...	1892	High-school graduation; graduation approved kindergarten training school.
IOWA.																	
Ackley	1,244	53	1	29	178	18	5	(2)	1	585	495	.....	.....	2	Yes...	1902	Special kindergarten course.
Albia	4,969	213	3	75	177	60	5	(2)	3	495	450	.....	.....	2	Yes...	1911	Normal graduation.
Anamosa	2,963	128	2	70	180	60	5	6	1	540	450	.....	.....	2	Yes...	(2)	Graduation from normal school.
Audubon	1,928	82	1	36	176	26	5	(2)	1	540	495	.....	.....	2	Yes...	1909	Graduation from 2 years' kindergarten course.
Blairstown	532	22	1	12	178	[4]10	5	6	1	517	517	517	.....	2	Yes...	[5]1902	Same as State primary.
Brighton	776	33	1	18	173	12	5	(2)	1	405	405	.....	.....	2	Yes...	1908	Uniform county or State certificate.
Burlington	24,324	1,045	8	289	187	246	5	(2)	8	733	536	518	324	1	.....	1893	Graduation from approved training school.
Carroll	3,546	152	1	50	180	[4]45	5	7	1	540	540	.....	.....	2	Yes...	1912	Kindergarten training.
Cedar Falls	5,012	215	2	53	170	32	5	(2)	1	540	.....	.....	.....	2	Yes...	1912	(2)
Cedar Rapids	32,811	1,410	9	553	177	495	5	6	9	675	495	450	225	1	.....	1899	Special training.
Cincinnati	1,355	58	1	42	180	31	5	(2)	1	360	360	.....	.....	2	Yes...	1908	Second-grade county certificate.
College Springs	626	26	1	40	174	31	5	(2)	1	675	675	.....	.....	2	Yes...	1906	None.
Coon Rapids	1,084	46	1	42	178	27	5	(2)	1	540	.....	.....	.....	(2)	.....	(2)	State primary certificate.
Council Bluffs	29,292	1,259	14	557	174	[4]417	5	7	15	675	405	405	405	1	.....	(2)	High-school graduate; 2 years' special training.
Creston	6,924	297	4	[4]48	180	[4]38	4	7	4	540	450	225	225	1	.....	1896	Graduation from approved kindergarten school.
Decorah	3,592	154	1	50	190	40	5	(2)	2	512	475	142	.....	1	.....	[5]1903	Graduation from kindergarten college.
Delta	728	31	1	24	178	18	4	(2)	1	450	.....	.....	.....	1	.....	1906	(2)
Denison	3,133	134	1	78	172	43	5	(2)	1	540	450	.....	.....	2	Yes...	1897	Graduation from good kindergarten training school.
Des Moines	86,368	3,713	72	2,441	186	1,425	5	(2)	53	900	550	600	450	2	Yes...	1884	High-school graduate; kindergarten training, 2 years.
Dubuque	38,494	1,655	7	332	185	240	4½	6	14	550	400	400	350	1	.....	1895	Graduation from kindergarten college.
Eldora	1,995	84	1	[4]50	175	[4]40	5	7	1	540	495	.....	.....	1	.....	1912	Do.
Elkader	1,181	50	2	34	180	26	5	7	1	540	540	.....	.....	2	Yes...	(2)	Normal training course.
Grinnell	5,036	216	6	91	177	[4]75	5	6	3	540	450	.....	.....	2	Yes...	1894	Normal school; kindergarten.
Hampton	2,617	111	2	30	174	30	4½	(2)	3	472	450	180	180	2	Yes...	1906	Kindergarten diploma.
Ida Grove	1,874	80	1	35	180	30	5	6	1	495	.....	.....	.....	2	Yes...	(2)	Graduation from kindergarten training school.
Jefferson	2,477	106	2	60	177	47	5	(2)	2	720	.....	180	180	2	Yes...	(2)	Graduation from kindergarten course.
Le Mars	4,157	178	1	38	180	25	5	(2)	1	540	450	.....	.....	1	.....	1900	Graduation from kindergarten course.
Manchester	2,758	119	1	45	175	31	4½	6	2	450	450	.....	90	2	Yes...	1900	Graduation from kindergarten training school.
Maquoketa	3,570	153	1	[4]40	177	30	5	(2)	2	450	450	108	108	1	.....	1911	Kindergarten diploma.
Marshalltown	13,374	575	7	243	174	190	5	(2)	7	665	475	.....	.....	2	Yes...	1890	High school or kindergarten college graduation.
Mason City	11,230	482	10	293	180	[4]220	5	[3]7	6	(2)	450	450	360	2	Yes...	(2)	High-school graduation; kindergarten training.
Mediapolis	858	37	1	27	180	21	5	6	1	315	.....	.....	.....	2	Yes...	1910	County certificate.
Missouri Valley	3,187	137	2	64	177	53	4½	(2)	1	540	472	.....	.....	2	Yes...	1911	Graduation from kindergarten course.

[1] In some cases two sessions. [2] No data. [3] Not fixed; depends on development. [4] Estimated. [5] Approximate.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
IOWA—continued.																	
Monticello	2,043	87	1	38	174	34	5	(1)	1	$585	.....	.....	.....	2	Yes...	(1)	Graduation from State normal.
Mount Pleasant	3,874	167	2	60	180	45	5	6	2	585	.....	.....	.....	1	.....	(1)	(1)
North English	848	36	1	25	[2]180	20	5	(1)	1	450	$405	.....	.....	2	Yes...	(1)	High-school graduation; 2 years' training.
Odebolt	1,283	55	1	22	178	18	5	7	1	540	450	.....	.....	2	Yes...	1900	Graduation from approved kindergarten training school; 1 year normal training.
Oskaloosa	9,466	407	5	201	177	117	5	8	5	540	540	.....	.....	2	Yes...	[3]1890	High-school graduation; kindergarten college graduation.
Panora	1,080	46	1	34	178	27	5	(1)	1	540	450	.....	.....	2	Yes...	1909	Normal-school training.
Pella	3,021	129	2	49	172	36	4½	6	1	495	.....	.....	.....	2	Yes...	1902	Special training and successful experience.
Rock Rapids	2,005	86	1	34	178	24	5	6	1	540	.....	.....	.....	2	Yes...	1906	Normal-school training.
Rockwell	700	30	1	12	177	11	5	6	1	450	.....	.....	.....	1	.....	(1)	Special primary certificate.
Rockwell City	1,528	65	2	55	178	38	4½	(1)	1	517	.....	.....	.....	1	.....	1912	High-school graduation; 2 years' kindergarten course.
Sac City	2,201	94	1	54	177	41	5	6	3	495	.....	.....	.....	2	Yes...	1900	Graduation from kindergarten training school.
Sheldon	2,941	126	1	84	178	60	5	(4)	1	540	540	.....	.....	2	Yes...	1901	Do.
Shenandoah	4,976	213	1	96	180	48	5	7	2	585	360	$360	$180	2	Yes...	1908	Kindergarten training certificate.
Sioux Rapids	868	36	1	29	175	25	5	(4)	1	517	450	.....	.....	2	Yes...	(1)	University or special normal.
Tama	2,290	98	1	40	176	35	5	7	1	495	495	.....	.....	2	Yes...	(1)	2 years' special training.
Walnut	950	40	1	18	178	15	5	(1)	1	472	.....	.....	.....	2	Yes...	1903	2 years' kindergarten training.
Wapello	1,326	56	1	26	176	18	5	7	1	495	450	.....	.....	1	.....	1907	High-school graduation; 2 years' special training.
Washington	4,380	188	8	144	176	97	4	(4)	4	540	495	315	270	2	Yes...	(1)	Graduation from standard kindergarten course.
Waterloo	26,693	1,147	6	203	175	180	5	6	10	472	247	247	247	1	.....	1899	Graduation from standard kindergarten training college.
KANSAS.																	
Atchison	16,429	706	2	62	169	38	5	7	2	585	.....	360	.....	2	Yes...	1910	Kindergarten training; primary training for assistant.

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Caney	3,597	154	3	103	178	92	5	6	3	540	495	.....	.....	2	Yes...	(1)	Graduation from primary and kindergarten.
Columbus	3,064	131	2	65	170	40	5	(1)	1	495	.....	.....	.....	2	Yes...	1911	Graduation from correspondence school.
Conway Springs	1,292	55	1	30	175	21	5	(1)	1	540	540	.....	.....	2	(1)....	1900	(1)
Enterprise	706	30	1	23	180	18	4	6	1	540	.....	.....	[5] 90	1	.....	1905	State kindergarten certificate.
Howard	1,163	49	1	25	170	[2] 20	4	6	1	450	.....	.....	.....	2	Yes...	1909	None especially.
Kansas City	83,331	3,583	6	160	180	150	5	6	6	585	450	.....	.....	1	.....	1906	Kindergarten graduation.
Neodesha	2,872	123	4	122	178	75	4½	6	2	630	450	.....	.....	2	Yes...	(1)	Special State normal school training.
Newton	7,862	337	3	175	175	142	5	(1)	3	540	450	.....	.....	1	.....	1909	Do.
Sabetha	1,768	75	1	50	185	[2] 40	5	6	1	540	540	180	180	2	Yes...	1906	State normal school training.
Salina	9,688	416	1	[2] 64	178	[2] 52	5	7	2	720	.....	.....	450	1	.....	1910	Technical training; actual experience.
Sterling	2,133	91	2	57	180	41	5	[4] 6	1	630	.....	.....	.....	2	Yes...	(1)	Special preparation.
Stockton	1,317	56	1	31	180	26	5	(1)	1	585	585	.....	.....	1	.....	1910	No fixed standard.
Topeka	43,684	1,878	2	82	174	24	4	6	2	765	360	135	.....	1	.....	1908	Graduation from high school and kindergarten course.
KENTUCKY.																	
Covington	53,270	2,290	14	663	184	383	4	6	14	750	450	700	450	2	Yes...	1890	Diploma of kindergarten training school.
Frankfort	10,465	449	2	75	190	40	5	6	3	525	325	325	325	1	.....	(1)	(1)
Lexington	35,099	1,509	6	596	200	465	4	6	16	500	250	400	250	1	.....	1888	Two years' course in training.
Louisville	223,928	9,628	32	1,911	200	878	4	6	31	800	500	.....	.....	1	.....	1903	High-school graduation; normal-school graduation.
Versailles	2,268	97	1	42	190	27	5	7	1	380	380	95	95	1	.....	1906	(1)
LOUISIANA.																	
Arcadia	1,079	46	1	20	177	15	4½	7	1	495	495	.....	.....	1	.....	1903	First-grade certificate.
Monroe	10,209	439	1	60	180	28	5½	6	1	585	.....	[6]	.....	1	.....	1903	Graduation from training school.
Morgan City	5,477	235	1	60	174	54	5	(1)	1	540	.....	.....	.....	2	Yes...	1910	State license.
New Orleans	339,075	14,580	40	2,532	177	1,231	4	6	98	900	600	600	600	1	.....	1884	Training school for kindergartners.
Shreveport	28,015	1,204	1	89	173	51	4	6	3	720	.....	540	450	1	.....	1905	Graduation from State kindergarten training school.
Vidalia	1,345	57	1	28	175	20	4	6	1	540	.....	.....	.....	1	.....	1908	(1)
MAINE.																	
Augusta	13,211	568	4	137	177	80	4	6	6	525	350	525	350	1	.....	1905	Kindergarten school graduation.
Bangor	24,803	1,066	8	312	177	250	4	6	17	135	101	108	90	1	.....	1898	Graduation from normal school; kindergarten training school.
Biddeford	17,079	734	1	56	167	31	4	5	1	500	425	.....	.....	1	.....	1892	Special training.
Lewiston	26,247	1,128	2	93	178	67	4	(4)	2	625	600	.....	.....	2	Yes...	1898	Graduation from high school; graduation from kindergarten training school.
Portland	58,571	2,518	9	553	180	307	4	6	18	600	450	600	450	1	.....	1883	Graduation from kindergarten training school.
Rangeley	695	29	1	50	180	[2] 38	5	(1)	1	400	400	.....	.....	2	Yes...	1895	Normal training.
Saco	6,583	282	1	45	161	19	4	5	1	325	.....	.....	.....	1	.....	(1)	Attendance on preparatory kindergarten school.
Skowhegan	5,341	229	2	38	172	29	4	6	2	399	324	216	180	2	Yes...	1900	Graduation from kindergarten training school.
Winslow	2,709	116	1	65	159	42	5	7	2	324	288	288	288	2	Yes...	(1)	Do.

[1] No data.
[2] Estimated.
[3] Approximate.
[4] Not fixed; depends on development.
[5] For musician.
[6] Cadets from training school.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MARYLAND.																	
Baltimore	558,485	24,014	22	1,256	190	698	6	(1)	45	$500	$333	$333	$250	1	.....	1901	Graduation from approved kindergarten training school.
Port Deposit	1,394	59	1	26	171	14	4	6	2	700	500	250	.....	1	.....	(2)	(2)
MASSACHUSETTS.																	
Attleboro	16,215	697	1	39	183	20	4	(2)	2	525	.....	.....	325	1	.....	1897	(2)
Boston	670,585	28,835	124	6,160	184	[3] 4,340	4	5	228	1,032	696	768	480	1	.....	1888	Graduation from normal school.
Braintree	8,066	346	5	166	171	94	5	(1)	5	550	450	.....	.....	1	.....	[4] 1893	Graduation from training school.
Bridgewater	7,688	330	1	48	183	28	4	6	2	1,000	.....	.....	.....	2	Yes...	(2)	Normal training.
Brookline	27,792	1,195	11	423	187	315	3½	(1)	21	800	.....	700	.....	[5]	.....	1889	Adequate training and experience.
Cambridge	104,839	4,508	32	1,414	191	820	4	6	28	750	510	672	510	[5] 2	Yes...	1889	Graduation from high school and training school and 1 year's experience.
Chicopee	25,401	1,092	2	78	193	46	4	6	2	620	400	560	400	2	Yes...	1899	Diploma from preparatory kindergarten training school.
Dedham	9,284	399	4	120	188	100	4	(2)	4	550	550	.....	.....	1	.....	1903	Graduation and 1 year's experience.
Easton	5,139	220	1	39	188	19	4½	7	2	475	200	.....	.....	1	.....	(2)	Graduation from approved kindergarten training school.
Fall River	119,295	5,129	6	337	192	234	4	5	12	700	540	620	540	1	.....	1892	Graduation from high school; graduation from kindergarten training school.
Falmouth	3,144	135	1	30	174	16	4	5½	1	669	429	.....	.....	1	.....	1906	Adequate training.
Fitchburg	37,826	1,626	3	106	155	93	5	6	4	750	450	720	400	1	.....	1906	Normal graduate.
Greenfield	10,427	448	2	56	185	41	4	(1)	2	450	400	.....	.....	1	.....	1898	High-school graduation; kindergarten training school graduation.
Haverhill	44,115	1,896	4	170	185	130	4	(2)	7	700	410	700	410	1	.....	1905	Graduation from training school.
Holyoke	57,730	2,482	10	573	187	276	4	5½	20	650	450	550	400	1	.....	1897	High-school graduation and kindergarten training.
Hopedale	2,188	93	1	26	174	20	4	5	2	360	360	180	180	1	.....	1898	Graduation from kindergarten training school.
Lee	4,106	176	1	34	175	23	4	[6]	1	380	.....	.....	.....	1	.....	1912	Do.

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Lowell	106,294	4,570	11	647	190	301	3½	5	22	600	550	550	550	1	.....	1890	Normal school or college graduation.
Marblehead	7,338	315	2	85	178	67	4	6	5	500	400	.....	.....	1	.....	1890	Graduation from approved kindergarten training school.
Methuen	11,448	492	5	200	196	[3]160	4½	([2])	6	570	380	.....	.....	2	Yes...	([2])	Normal or approved school.
Milton	7,924	340	5	120	179	[3]95	5	6	5[4]	700	600	400	300	1	.....	([2])	Graduation from normal school.
New Bedford	96,652	4,156	12	886	185	791	5	([1])	12	750	550	.....	.....	2	Yes...	1897	High-school graduation; normal graduation; 1 year's experience.
Newton	39,806	1,711	14	829	189	484	4	[1]7	29	675	475	300	100	1	.....	1893	Graduation from approved kindergarten training school.
North Adams	22,019	946	5	223	190	114	4½	6	10	560	400	400	310	1	.....	1896	Graduation from kindergarten training school.
North Attleboro	9,562	411	3	105	180	[4]92	5	6	[3]3	600	500	.....	.....	1	.....	([2])	Graduation from approved school.
Northampton	19,431	835	2	80	189	72	4	6	2	440	400	.....	.....	1	.....	([2])	([2])
Pittsfield	32,121	1,381	4	264	194	[3]140	4	6	8	800	480	480	400	1	.....	1908	Do.
Salem	43,697	1,878	5	282	200	178	4	5	9	550	300	550	300	1	.....	1895	Graduation from kindergarten training school.
Somerville	77,236	3,321	4	248	185	173	5	([2])	8	650	300	475	200	1	.....	1896	College training or suitable experience.
Springfield	62,059	2,668	17	1,634	180	639	4	5	35	[6]800	700	550	[6]400	[7]1	.....	1894	Graduation from kindergarten training school; successful experience.
Waltham	27,834	1,196	5	240	188	148	4½	6	9	750	.....	450	.....	1	.....	1906	Graduation from kindergarten training school; 2 years' experience.
Westfield	16,044	689	5	190	190	126	4½	5½	10	520	400	.....	.....	1	.....	1898	Graduation from State normal or kindergarten training school.
West Springfield	9,224	396	2	[3]42	185	[3]25	4	5	1	469	469	.....	.....	2	Yes...	1896	Kindergarten training or normal school.
Winchester	9,309	399	2	84	184	51	4	6	4	575	.....	.....	.....	1	.....	1893	Graduation from kindergarten school and experience.
Worcester	145,986	6,307	33	1,748	184	844	5	6	43	850	550	450	400	1	.....	1892	High-school graduation; kindergarten training school.
MICHIGAN.																	
Algonac	1,204	51	2	46	180	28	5	([1])	1	450	.....	.....	.....	2	Yes...	1907	([2])
Alma	2,757	118	2	105	194	75	5½	6	2	550	500	500	500	2	Yes...	1903	Normal for college training.
Ann Arbor	14,817	637	2	39	186	34	5	([2])	1	700	500	.....	.....	2	Yes...	1909	Normal-school graduation.
Bad Axe	1,559	66	1	43	194	38	5	7	1	450	.....	.....	.....	2	Yes...	[4]1907	State life certificate.
Baraga	1,071	46	1	52	198	50	4	([3])	1	500	.....	.....	.....	2	Yes...	1902	Normal training.
Bay City	45,166	1,942	18	342	188	300	5	([1])	9	750	500	.....	.....	2	Yes...	1905	Graduation from approved kindergarten training school.
Belding	4,119	176	4	75	200	68	5	([2])	2	550	400	.....	.....	2	Yes...	[4]1900	Normal college training.
Bellaire	1,050	45	1	28	180	18	5	([1])	1	450	405	.....	.....	1	.....	1906	Normal school training.
Benton Harbor	9,195	394	6	199	175	110	5	7	5	500	450	.....	.....	2	Yes...	1911	Graduation from kindergarten training school.
Bessemer	4,583	196	3	132	200	125	5	6	3	650	550	250	150	2	Yes...	1900	Two years' normal training.
Big Rapids	4,519	193	4	105	200	93	5	7	10	550	450	.....	.....	2	Yes...	([2])	Graduation from approved kindergarten training school.
Boyne City	5,218	224	3	125	190	73	5	7	2	522	475	238	190	2	Yes...	1907	Normal graduation; 2 years' training.
Cadillac	8,375	359	10	251	200	175	5	7	5	500	450	.....	.....	2	Yes...	1890	Graduation from approved kindergarten training school.
Calumet	32,845	1,412	15	740	196	653	4	6	15	700	500	450	300	2	Yes...	1885	Kindergarten certificate.
Caro	2,272	97	2	100	195	70	5	7	1	500	500	.....	.....	2	Yes...	([2])	College.
Cassopolis	1,358	58	1	38	190	28	5	6	1	427	.....	.....	.....	2	Yes...	([2])	Normal or kindergarten graduation.

[1] Not fixed; depends on development.
[2] No data.
[3] Estimated.
[4] Approximate.
[5] Have since returned to one session.
[6] Largest salaries for teachers of two sessions; smallest salaries for teachers of one session.
[7] In some cases two sessions.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MICHIGAN—continued.																	
Cedar Springs	947	40	1	[1] 28	182	21	5	(2)	1	$475	.....	.....	.....	1	.....	1911	Life certificate.
Champion	1,069	55	1	[3] 36	196	[3] 26	4	7	1	650	$500	.....	.....	2	Yes...	1902	Graduation from recognized school.
Chelsea	1,764	75	2	30	200	23	5	6	1	425	.....	.....	.....	2	Yes...	1901	Graduation from normal school.
Chesaning	1,363	58	1	17	200	12	4	(4)	1	550	550	.....	.....	2	Yes...	(4)	College preparation.
Coldwater	5,945	255	2	69	185	49	4	7	2	550	.....	$300	.....	2	Yes...	[1] 1900	State requirements.
Corunna	1,384	59	1	50	190	38	5	7	1	500	450	.....	.....	2	Yes...	(4)	State life certificate.
Croswell	1,380	59	1	54	200	38	5	7	1	500	.....	.....	.....	2	Yes...	1907	State diploma.
Crystal Falls	3,775	162	5	180	196	141	5	7	4	650	500	.....	$200	2	Yes...	1892	State life certificate.
Detroit	465,766	20,027	81	7,897	200	3,238	5	6	170	1,000	500	800	500	1	.....	1895	Graduation from Detroit normal or equivalent.
Dowagiac	5,088	218	4	120	140	[3] 95	5	(2)	4	522	475	.....	.....	2	Yes...	(4)	Graduation from State normal
Durand	2,315	99	2	62	200	[3] 50	4	7	2	550	450	.....	.....	2	Yes...	1900	Graduation from approved school.
East Jordan	2,516	107	1	82	187	41	5	(2)	1	522	475	.....	.....	2	Yes...	(4)	Graduation from high school; graduation from kindergarten training school.
Eastlake	(5)	.....	1	74	187	56	4	7	1	575	.....	.....	.....	2	Yes...	1908	State life certificate.
East Tawas	1,452	62	2	32	198	28	5	(4)	1	450	425	.....	.....	2	Yes...	(4)	(4)
Eaton Rapids	2,094	89	1	38	197	21	5	7	1	475	.....	.....	.....	1	.....	1908	Life certificate from approved school.
Elk Rapids	1,673	71	2	36	185	32[6]	4½	5½	2	456	427	.....	.....	2	Yes...	1900	Graduation from approved school.
Escanaba	13,194	567	8	254	200	150	5	[6] 6	8	650	400	300	200	2	Yes...	(4)	Life certificate; normal school.
Evart	1,386	59	1	36	198	23	5	8	1	450	.....	.....	.....	2	Yes...	1907	Graduation from approoved kindergarten school.
Flint	38,550	1,657	12	627	190	367	4	6	12	650	400	650	400	2	Yes...	1901	Life certificate; 2 years' training.
Ford	1,089	72	2	32	200	23	4	(2)	1	550	550	.....	.....	1	.....	1908	Normal training.
Frankfort	1,555	66	1	36	196	28	5	6	1	500	.....	.....	.....	1	.....	1900	Kindergarten diploma.
Fremont	2,009	86	2	80	100	62	4	7	1	550	450	.....	.....	2	Yes...	1890	Graduation from 2 years' kindergarten course.
Gaylord	1,538	65	1	35	186	25	4	6	1	522	.....	.....	.....	1	.....	(5)	State certificate.
Gladstone	4,211	181	2	80	200	60	5	6	2	550	475	250	200	2	Yes...	1895	Graduation from approved kindergarten training school.
Grand Haven	5,856	251	1	94	194	66	5	(4)	3	550	400	450	350	2	Yes...	1896	State kindergarten certificate.

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Grand Rapids	112,571	4,440	68	2,059	191	1,481	4	6	52	800	400	800	400	2	Yes...	(4)	Graduation from high school; graduation from kindergarten training school.
Grandville	640	29	1	30	200	[1] 28	5	(4)	1	350	.....	.....	.....	2	Yes...	1910	State kindergarten certificate.
Hamtramck	3,539	152	1	120	200	38	5	6	1	650	650	.....	.....	2	Yes...	(4)	Life certificate.
Harbor Beach	1,556	66	1	25	196	[3] 18	5	6	1	550	450	.....	.....	2	Yes...	(4)	Special normal school course.
Harbor Springs	1,805	77	2	38	190	32	5	7	1	522	.....	.....	.....	2	Yes...	1906	Life certificate.
Hart	1,555	66	2	46	190	36	5	7	1	522	463	.....	.....	2	Yes...	1906	Normal graduate.
Hastings	4,383	188	1	49	200	32	5	(4)	1	525	.....	.....	.....	2	Yes...	(4)	Statutes of Michigan.
Highland Park	4,120	177	3	[1] 160	190	[1] 65	5	(4)	3	900	500	.....	.....	1	.....	(4)	Normal school life certificate.
Holland	10,490	451	5	250	192	[3] 185	5	(2)	5	575	425	.....	.....	2	Yes...	(4)	Graduation from approved kindergarten training school.
Houghton	5,113	219	4	176	198	160	4½	(2)	8	650	500	250	150	2	Yes...	1899	Normal or kindergarten school cadets; high school graduate.
Hudson	2,178	93	3	58	187	[3] 45	5	6	3	475	380	332	332	2	Yes...	(4)	Two years' special training.
Ionia	5,030	216	2	92	192	68	4	6	2	475	.....	200	.....	2	Yes...	(4)	State certificate.
Iron River	2,450	105	1	118	197	65	5	6	2	600	500	350	200	2	Yes...	(4)	Life certificate, kindergarten department.
Ironwood	12,821	551	14	477	200	341	4	6	16	650	600	400	125	2	Yes...	1898	Graduation from reputable kindergarten training school.
Ithaca	1,876	80	1	46	187	38	4	6	1	500	450	.....	.....	2	Yes...	1903	College training.
Kalamazoo	39,437	1,695	17	837	186	403	4½	6	15	690	465	465	420	[5] 1	Yes...	1898	Graduation from approved kindergarten training school.
Kalkaska	1,415	60	1	33	176	26	5	6	1	495	450	.....	.....	1	.....	(4)	State teacher's graded certificate.
Lake Odessa	1,222	52	1	32	188	29	5	7	1	475	.....	.....	.....	2	Yes...	1901	Normal school graduation.
Lansing	31,229	1,342	14	280	185	[3] 210	5	(4)	8	700	600	400	.....	2	Yes...	1908	Two years' course.
Lapeer	3,946	169	1	52	197	45	5	(4)	1	500	.....	.....	.....	2	Yes...	1912	College.
Lawton	1,042	44	1	20	180	16	5	(2)	1	427	.....	.....	.....	2	Yes...	1900	Normal school Michigan standard.
Leslie	1,032	44	1	25	200	18	5	6	1	450	450	.....	.....	1	.....	1910	Normal graduate.
Lowell	1,761	75	2	28	191	26	5	7	1	400	.....	.....	.....	1	.....	1906	Graduation from normal or kindergarten training school.
Mancelona	1,200	51	2	40	179	32	4	(4)	2	472	450	.....	.....	2	Yes...	(4)	Normal graduate.
Manchester	1,047	44	2	15	198	14	5	7	2	400	.....	.....	.....	2	Yes...	1903	One year of normal training.
Manistee	12,381	532	6	180	198	175	4	5	6	550	450	.....	.....	2	Yes...	1903	High-school graduation; kindergarten training school graduation; State certificate.
Manistique	4,722	202	4	152	193	137	5	(2)	4	650	550	.....	.....	2	Yes...	1897	High-school graduation; 2 years' special training.
Manton	1,069	45	1	27	177	25	5	(4)	1	450	.....	.....	.....	2	Yes...	(4)	Kindergarten certificate.
Mariette	1,062	45	1	69	195	26	5	7	1	550	.....	.....	.....	1	.....	1904	Graduation from kindergarten school.
Marquette	11,503	494	4	175	195	132	4	(4)	7	750	.....	.....	.....	2	Yes...	1901	Normal-school training.
Menominee	10,507	455	10	256	187	205	5	7	10	570	427	237	237	2	Yes...	1893	Graduation from kindergarten normal.
Monroe	6,893	296	3	90	185	[3] 75	4½	6	3	500	475	.....	.....	2	Yes...	1904	High-school graduation; kindergarten training school graduation.
Mt. Clemens	7,707	331	4	145	190	92	5	(2)	3	575	525	.....	.....	2	Yes...	1900	Normal-school graduation.
Munising	2,952	126	2	65	195	45	5	[16]	1	700	500	.....	.....	1	.....	[1] 1901	Life certificate; kindergarten work.
Muskegon	24,062	1,034	8	448	197	342	5	(2)	10	700	350	700	350	1	.....	1888	High-school graduation; normal training.
Muskegon Heights	1,690	72	4	99	196	51	5	7	2	550	400	400	300	2	Yes...	(4)	State kindergarten certificate.
National Mine	(4)	.....	1	50	200	35	4	6	2	500	500	150	150	2	Yes...	1910	Graduation from training school.
Negaunee	8,460	363	6	156	200	101	5	6	3	600	450	250	250	2	Yes...	1893	Graduation from kindergarten training school; approved by State superintendent.

[1] Approximate. [2] Not fixed; depends on development. [3] Estimated. [4] No data. [5] In some cases two sessions.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MICHIGAN—continued.																	
Newaygo	1,207	51	1	38	200	29	5	7	1	$500	$500	.....	.....	1	.....	1901	Normal training.
Newberry	1,182	50	2	64	198	53	4½	6	1	650	500	.....	.....	2	Yes...	(1)	Two years' training school.
Northville	1,665	71	1	35	[2] 200	30	4	(3)	1	450	450	$450	$450	2	Yes...	(1)	Normal college.
Onaway	2,702	116	2	103	196	59	5	(3)	1	600	450	250	100	2	Yes...	1906	Two years' course in kindergarten.
Ontonagon	1,964	84	1	38	198	30	4	6	1	600	500	300	250	2	Yes...	1910	Graduation in kindergarten work.
Osceola	7,775	334	5	187	200	151	4½	6	5	700	450	350	250	1	.....	1898	Graduation from approved kindergarten training school.
Otsego	2,812	120	2	60	180	45	5	7	1	(1)	451	261	190	2	Yes...	(1)	Graduation from kindergarten normal.
Owosso	9,639	414	7	220	196	165	5	7	4	600	500	.....	.....	2	Yes...	(1)	Two years' normal training.
Oxford	11,911	512	1	29	195	25	4	6	1	500	.....	.....	.....	1	.....	1910	State life certificate.
Paw Paw	1,643	70	1	27	197	23	5	7	1	546	403	.....	.....	1	.....	1909	State normal school training.
Plainwell	1,493	64	2	64	190	35	4	6	1	380	.....	.....	.....	2	Yes...	(1)	Normal school training.
Plymouth	1,671	71	1	62	198	26	4	6	1	550	450	.....	.....	1	.....	1900	Normal-training or equivalent.
Pontiac	14,532	624	5	252	193	116	4½	7	7	[2] 700	[2] 500	[2] 300	[2] 300	1	.....	1903	2 years' normal training.
Quincy	1,347	57	1	12	186	8	5	(3)	1	427	.....	.....	.....	2	Yes...	1899	Normal kindergarten course.
Reed City	1,690	72	1	50	190	[2] 38	4	6	1	450	.....	.....	.....	2	Yes...	(1)	Kindergarten certificate.
River Rouge	4,163	178	3	140	200	105	5	6	3	600	450	.....	.....	2	Yes...	1901	Life certificate; kindergarten course.
Romeo	1,787	76	1	30	200	26	4	7	1	500	500	.....	.....	2	Yes...	1909	Normal college graduation.
St. Charles	1,451	62	2	56	196	37	4	7	1	500	.....	.....	.....	2	Yes...	(1)	High-school graduation; 2 years' approved course.
St. Clair	2,633	113	1	48	176	29	5	7	1	600	450	.....	.....	2	Yes...	(1)	Normal kindergarten course.
St. Johns	3,154	135	3	110	188	88	5	7	3	600	450	.....	.....	2	Yes...	1904	High-school graduation; State normal graduation.
St. Joseph	5,936	254	2	98	178	75	5	(3)	4	550	419	225	225	1	.....	1895	2 years' course in kindergarten institute.
St. Louis	1,940	83	2	72	190	44	4	6	1	475	475	.....	.....	2	Yes...	1899	Graduate from normal school or college.
Sault Ste. Marie	12,615	542	6	200	195	180	5	(3)	3	700	550	[4] 152	.....	2	Yes...	1900	Graduate from State normal or equivalent.
Shepherd	335	35	1	[2] 30	178	22	5	7	1	450	.....	.....	.....	2	Yes...	1907	(1)
Sparta	1,203	51	1	40	198	34	5	6	1	450	.....	.....	.....	2	Yes...	(1)	Normal graduation.
Springwells	1,235	78	1	30	200	25	5	6	1	600	.....	.....	.....	2	Yes...	1902	Second grade county certificate.

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Stambaugh	1,322	56	4	128	194	82	5	7	3	600	500	.....	300	2	Yes...	1904	Normal-school graduation.
Stanton	1,012	43	1	19	190	17	5	(1)	1	427	.....	.....	.....	2	Yes...	(1)	(1)
Sturgis	3,535	156	1	98	190	90	4	6	1	475	.....	.....	.....	2	Yes...	1907	Kindergarten school graduation.
Tecumseh	2,332	100	2	27	180	23	5	6	1	500	450	.....	.....	2	Yes...	1910	State certificate.
Three Rivers	5,072	218	2	98	185	93	4	8	4	475	427	475	331	2	Yes...	1903	Kindergarten department graduation.
Travers City	12,115	520	10	230	185	213	5	6½	5	575	550	.....	.....	2	Yes...	1903	Kindergarten training-school graduation.
Trenton	1,224	52	1	40	200	30	5	6	1	500	450	.....	.....	2	Yes...	1910	Graduate from approved kindergarten-training school.
Wakefield	714	30	3	95	197	80	4	6	2	700	600	.....	.....	[6]1	Yes...	1900	Graduate from State or normal kindergarten training schools.
Wayne	1,263	54	1	23	196	20	5	7	1	475	400	.....	.....	1	.....	1910	Normal-school training.
Whitehall	1,437	61	2	40	188	32	4	7	1	475	380	.....	.....	2	Yes...	1900	Kindergarten course.
Wyandotte	8,287	356	3	150	170	68	4	6	2	600	425	.....	.....	[6]1	Yes...	(1)	Graduate from approved school.
Yale	1,223	52	2	42	186	28	5	(1)	1	570	.....	.....	.....	2	Yes...	1908	Graduate from approved kindergarten school.
Ypsilanti	6,230	267	3	125	177	79	4	6	4	1,098	1,000	.....	.....	1	.....	1888	College degree and professional training.
Zeeland	1,982	85	1	70	198	65	5	7	2	550	.....	.....	.....	2	Yes...	1905	Normal-school graduation.
MINNESOTA.																	
Akeley	2,574	110	1	48	180	38	4½	6	1	540	495	.....	.....	2	Yes...	1908	Graduate from kindergarten training school.
Aurora	1,919	82	2	82	185	60	5	6	2	700	650	650	650	2	Yes...	1908	2 years' course.
Bemidgi	5,099	218	1	60	180	35	5	(1)	1	585	495	.....	.....	2	Yes...	1909	Normal-school training.
Biwabik	1,690	72	1	50	185	36	4½	(1)	1	835	.....	.....	.....	2	Yes...	[5]1903	Graduate from kindergarten normal school.
Blue Earth	2,319	99	1	61	176	[2] 46	5	6	1	517	450	.....	.....	1	.....	1900	High-school graduation; 2 years' kindergarten school.
Buhl	1,005	43	2	75	194	[2] 56	4½	6	2	825	700	.....	.....	2	Yes...	1909	Graduate from kindergarten training school; experience.
Cass Lake	2,011	86	1	47	180	25	4	7	1	540	.....	.....	.....	1	.....	1907	State permit.
Chisholm	7,684	330	6	190	184	157	5	7	6	.....	700	.....	650	2	Yes...	1902	2 years' kindergarten training; 2 years' experience.
Coleraine	1,613	69	6	116	190	92	4½	6	4	870	690	.....	.....	2	Yes...	1907	High-school graduation; kindergarten training 2 years.
Deer River	900	38	1	40	180	22	5	(1)	1	540	495	.....	.....	2	Yes...	1910	Graduate from special school.
Duluth	78,466	3,374	22	661	190	[5] 495	4	(1)	17	500	.....	.....	.....	2	Yes...	(1)	Same as grade teachers.
Ely	3,572	153	3	149	185	133	5	6	4	712	570	475	.....	2	Yes...	(1)	Normal-school graduation.
Eveleth	7,036	302	9	300	180	275	5	(2)	8	760	622	760	570	2	Yes...	1904	Normal-school graduation; 2 years' experience.
Gilbert	1,700	73	5	146	200	128	5	6	8	750	650	700	650	2	Yes...	[5]1905	Graduation from approved kindergarten school.
Grand Rapids	2,230	95	2	45	190	35	5	7	2	812	432	432	432	2	Yes...	1905	Professional training.
Hibbing	8,832	379	8	310	200	201	5	6	10	850	750	750	750	2	Yes...	1905	High-school graduation; 2 years' professional training.
Jackson	1,907	81	2	60	178	50	5	(1)	2	540	450	.....	.....	2	Yes...	(1)	Normal-school graduation.
Keewatin	695	29	2	64	185	40	4	6	2	.....	617	.....	570	2	Yes...	1910	Graduate from approved kindergarten-training school.
Lake City	3,142	135	1	52	180	40	5	(3)	1	495	.....	.....	.....	1	.....	1904	Advanced normal or kindergarten normal.

[1] No data.
[2] Estimated.
[3] Not fixed; depends on development.
[4] Cadets from training school.
[5] Approximate.
[6] In some cases two sessions.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MINNESOTA—contd.																	
Lake Crystal	1,055	45	1	21	176	14	5	(1)	1	$585	$450	.....	.....	2	.....	1911	Graduate from advanced State normal.
Mankato	10,365	445	4	131	176	115	5	(1)	4	540	450	.....	.....	2	Yes...	1907	Minnesota normal advanced kindergarten course.
Minneapolis	301,408	12,960	26	1,052	187	[2]789	5	[16]	20	1,000	750	$750	$500	2	Yes...	1900	High-school graduation; normal-school graduation; 1 year teaching.
Mountain Iron	1,343	57	1	49	195	39	5	6	1	800	.....	.....	.....	2	Yes...	1898	Graduate from kindergarten course.
Nashwauk	2,080	89	4	130	185	90	4	[17]	4	688	665	622	522	2	Yes...	1907	Graduate from recognized kindergarten training school.
Ortonville	1,774	76	1	54	180	[2]40	4	6	1	585	.....	.....	.....	2	Yes...	1912	Kindergarten course.
Owatonna	5,658	242	2	48	175	38	5	6	2	495	.....	270	270	2	Yes...	1910	High-school graduation; special kindergarten preparation.
Park Rapids	1,801	77	2	40	172	35	5	6	2	630	450	495	450	2	Yes...	1904	Normal and special kindergarten preparation.
St. Charles	1,159	49	1	20	180	17	5	(1)	1	450	.....	.....	.....	2	Yes...	(3)	Graduate from school in primary methods.
St. Paul	214,744	9,233	74	2,700	190	[2]2,000	5	6	63	900	600	600	500	2	Yes...	1891	Normal school graduation.
Springfield	1,482	63	1	30	180	26	5	[7]	1	495	450	.....	.....	2	Yes...	1903	Graduate from State normal school.
Tower	1,111	47	2	77	176	67	5	6	2	585	540	.....	.....	2	Yes...	1907	One year of kindergarten training.
Tracy	1,876	80	1	40	180	[2]30	5	(5)	1	450	.....	.....	.....	2	Yes...	1900	Graduate from kindergarten course.
Virginia	10,473	450	7	350	200	330	4½	6	11	1,200	900	1,020	840	2	Yes...	1904	Normal-school graduation; 2 years' experience.
Wells	1,755	75	2	55	175	35	4½	6	1	585	450	.....	.....	2	Yes...	1903	Normal training or special kindergarten training.
Windom	1,749	74	4	55	172	[2]41	5	6	2	495	450	.....	.....	2	Yes...	[4]1900	State normal-school graduation.
Winona	18,583	799	7	408	190	[2]306	5	6	6	650	505	500	365	2	Yes...	1899	Graduate from kindergarten normal school; 2 years' experience.
Wobasha	2,622	112	2	35	180	28	5	6	1	495	450	.....	.....	2	Yes...	(3)	Graduate from State normal school.

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MISSISSIPPI.																
Aberdeen	3,708	159	1	70	180	67	5	(1)	1	630	630			2	Yes...	1900	Experience in primary teaching.
Greenville	9,610	413	1	26	180	21	4½	6	1	675				1		1900	Kindergarten-training school.
Laurel	8,465	363	6	252	157	190	5	[5]6	6	720	450	405	315	2	Yes...	1909	Professional training or 2 years' kindergarten experience.
Long Beach	1,026	43	1	12	140	10	4	6	1	440				2	Yes...	1911	Best that can be secured.
Natchez	11,791	507	2	109	180	76	4	6	3	540	360	315	135	1		1896	State teacher's license and license of national association.
Philadelphia	1,209	51	1	30	120	22	4	6	1	270				1		1912	(3)
Yazoo City	6,796	291	1	35	180	23	4	6	1	675		675		1		1905	(3)
MISSOURI.																	
Caruthersville	3,655	157	2	100	180	75	6	(1)	2	495	450			2	Yes...	1903	Normal elementary certificate.
Cape Girardeau	8,475	364	1	28	120	15	(2)	(1)	1	850				1		1903	Normal-school graduation.
Kansas City	248,381	10,680	40	2,511	186	1,476	6	[7]7	69	750	600	450	300	[5]1		1896	Pass examination.
Kirkwood	4,171	179	1	68	186	50	5	6	2	700	600			1		1908	Graduate from kindergarten-training school. (3)
Marshfield	1,193	51	1	60	160	45	5	7	1	400				2	Yes...	(3)	
St. Joseph	77,403	3,329	2	80	178	70	6	(1)	2	810	450			1		1909	Special preparation in some institution.
St. Louis	687,029	29,542	155	11,025	200	5,537	6	(3)	272	[6]1,120	[6]920	[6]700	[6]640	[5]1	Yes...	1873	Graduate from kindergarten normal of St. Louis.
MONTANA.																	
Helena	12,515	538	6	130	190	95	4	6	6	1,200	660	960	600	1		1893	Graduate from kindergarten-training school.[7]
NEBRASKA.																	
Albion	1,584	68	2	64	176	47	5	6	1	630				2	Yes...	1901	Normal-school graduation.
Aurora	2,630	113	2	90	180	78	4½	7	2	540	450	450		2	Yes...	1912	Two years' kindergarten training.
Bancroft	742	31	1	35	178	20	5	6	1	585				2	Yes...	(3)	College education and 3 years' experience.
Broken Bow	2,260	97	2	110	180	77	5	(1)	2	630	450	135		2	Yes...	(3)	Graduate from State normal.
Cedar Rapids	576	25	1	41	175	32	5	....	1	495				2	Yes...	1902	County certificate with special work.
Columbus	5,014	215	4	110	180	85	5	6	2	585	540			2	Yes...	1899	Graduate from standard normal.
Dundee	1,023	43	2	43	180	30	5	(3)	1	630				2	Yes...	1910	Meet requirements of State.
Edgar	1,080	46	1	20	172	15	5	6	1	495				2	Yes...	1907	State certificate.
Falls City	3,255	140	6	110	175	95	5	(1)	6	540	540	180	180	2	Yes...	1897	One year kindergarten training; 1 year's experience.
Florence	1,526	65	2	40	178	22	5	7	1	585	585			2	Yes...	1909	High-school graduation or equivalent; also 2 years' kindergarten training.
Fremont	8,718	374	5	175	178	165	5	6	5	600	460			2	Yes...	1909	High-school graduation; 1 year cadet; additional work at kindergarten college. (3)
Geneva	1,741	74	1	29	[2]175	24	5	8	1	517				2	Yes...	(3)	
Genoa	1,376	59	2	45	175	38	5	(1)	1	540	540	405	405	2	Yes...	1900	Normal training.
Harvard	1,102	47	2	27	180	25	5	7	1	450				2	Yes...	(3)	First-grade kindergarten certificate.
Havelock	2,680	115	2	75	180	60	5	6	1	540				2	Yes...	1905	Kindergarten certificate Nebraska law.
Kearney	6,202	266	6	250	180	229	5	(3)	8	562	495	495	405	2	Yes...	(3)	Normal-school graduate.

[1] Not fixed; depends on development.
[2] Estimated.
[3] No data.
[4] Approximate.
[5] In some cases two sessions.
[6] Largest salaries for teachers of two sessions; smallest salary for teachers of one session.
[7] Also musical ability, good health, personality.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
NEBRASKA—continued.																	
Lincoln	43,973	1,891	14	852	175	692	4½	6	14	$765	$585	$450	$315	[1] 1	Yes...	1893	High-school graduate; 2 years' kindergarten training; 2 years' experience.
Minden	1,559	67	1	40	179	26	4½	6½	1	495	450	.....	.....	1	.....	1910	Normal-school graduation.
Norfolk	6,025	259	6	143	172	86	5	(2)	5	585	405	180	180	2	Yes...	1910	Graduate from standard kindergarten-training school.
North Bend	1,105	47	1	28	180	20	5	(2)	1	540	.....	.....	.....	2	Yes...	1905	State normal school.
Omaha	124,096	5,336	35	1,908	190	1,237	5	6	52	830	500	500	420	[1] 1	Yes...	1893	High-school graduation and teachers' training school.
Pierce	1,200	52	1	23	177	[4] 17	5	(2)	1	675	.....	.....	.....	2	Yes...	(2)	First grade county or State kindergarten certificate.
Red Cloud	1,686	72	2	72	175	55	5	(2)	2	540	450	450	300	2	Yes...	(2)	Normal school training.
St. Paul	1,336	57	1	28	178	16	5	6	1	495	.....	.....	.....	2	Yes...	1907	State certificate, complete course.
Scotts Bluff	1,746	75	2	100	170	50	5	8	1	675	540	.....	.....	2	Yes...	1906	City certificate.
Seward	2,106	91	2	67	175	42	5	[3] 6	1	495	450	.....	.....	2	Yes...	(2)	Regular kindergarten training.
South Omaha	26,259	1,129	12	538	190	189	5	6	12	713	570	523	475	2	Yes...	1909	High-school graduation; 2 years' kindergarten training.
Sutton	1,702	73	2	40	173	36	5	7	1	450	.....	.....	.....	2	Yes...	1902	City State certificate; 2 years' experience.
Tecumseh	1,748	75	2	40	175	35	5	7	1	585	450	.....	.....	2	Yes...	1908	City first-grade certificate.
Tekamah	1,524	66	2	48	180	32	5	6	1	495	495	.....	.....	2	Yes...	1911	City State certificate.
Valentine	1,098	47	1	[4] 28	174	[4] 20	5	(2)	1	585	585	.....	.....	2	Yes...	1912	Special training, experience.
Wayne	2,140	92	2	60	175	50	5	7	2	585	540	135	90	2	Yes...	1909	Graduation from standard kindergarten training school.
West Point	1,776	76	2	30	175	25	5	(2)	2	450	225	225	225	2	Yes...	1908	No special requirement.
Wilber	1,219	52	2	38	176	32	5	(2)	1	563	.....	.....	.....	2	Yes...	(2)	Normal-school graduation in kindergarten course.
York	6,235	268	2	101	175	68	5	6	2	585	450	405	270	2	Yes...	1900	Kindergarten training school graduation.
NEVADA.																	
Goldfield	4,838	107	1	58	184	[4] 40	5	6	1	1,350	.....	.....	.....	1	.....	1909	Kindergarten college graduation.
Reno	10,867	367	2	131	177	64	4½	6	3	900	675	.....	630	1	.....	1895	Graduation from recognized kindergarten training school.

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NEW HAMPSHIRE.																
Claremont	7,599	327	2	39	180	30	5	6	2	422				2	Yes...	(1)	Graduation from kindergarten training school.
Concord	21,497	924	6	219	180	148	4	6	10	550	400	400	300	1		1891	Graduation from standard kindergarten training school.
Franklin	6,132	264	2	40	160	30	4½	6	2	340	340			1		1893	Graduation from regular kindergarten training school.
Keene	10,068	433	2	68	172	60	4	(2)	4	490	350	144	144	1		1892	Graduation from kindergarten training school.
Manchester	70,063	301	4	228	182	133	3½	6	8	700	400			1		1903	Do.
Nashua	26,005	1,118	7	280	171	224	4	6	14	450	396	396	351	1		1893	Do.
Newport	3,765	161	1	44	173	26	4	7	2	414		108		1		1902	Normal-school graduation.
Portsmouth	11,269	484	4	122	177	87	5	(2)	5	650	400			1		1895	Graduation from approved kindergarten training school.
Walpole	2,668	115	2	46	175	38	5	(2)	1	432	396			2	Yes...	1905	Normal graduate.
NEW JERSEY.																	
Asbury Park	10,150	436	4	202	180	143	4	6½	7	800	550	600	550	1		1897	High-school graduation; 2 years' kindergarten training school.
Atlantic City	46,150	1,984	13	748	184	530	5	6	13	1,000	600	550	550	2	Yes...	1904	Normal school or kindergarten training school graduation.
Audubon	1,343	58	1	48	183	20	4	6	1	500				1		1906	High-school graduation; kindergarten training school graduation; State certificate.
Bayonne	55,545	2,388	13	787	195	392	4	7	13	950	600	950	600	1		(3)	(3)
Bloomfield	15,070	648	14	517	187	260	4½	6	14	700	550			2	Yes...	1898	Normal school kindergarten course or equivalent.
Boonton	4,930	212	2	75	185	65	4	6	2	650	500			2	Yes...	1900	Kindergarten certificate.
Bordentown	4,250	183	2	81	182	32	4	7	1	500	400	450	400	2	Yes...	1908	Special State certificate; special training.
Boundbrook	3,970	171	1	54	186	41	5	(2)	1	650			200	1		1899	Normal or kindergarten training, 1 year at least.
Butler	2,265	97	2	45	190	30	4	7	1	500				2	Yes...	1910	Normal kindergarten training.
Caldwell	2,236	96	1	61	188	28	4	6	1	850	500		500	1	Yes...	(3)	Normal-school graduation.
Camden	94,538	4,065	12	343	192	182	5	6	8	750	500			2	Yes...	1900	High-school graduation; 2 years' kindergarten training school.
Cape May	2,471	106	2	50	183	25	4	7	2	570	570			1		(3)	Normal-school graduation.
Carlstadt	3,807	164	2	136	198	83	4½	6	2	775	550			2	Yes...	(3)	State requirements.
Carlton Hill	(3)		1	32	188	27	4	6	1	800	500			2	Yes...	1908	Normal-school training.
Cedar Grove	670	29	1	24	188	16	4	6	1	700	500			1		1902	Normal or training school graduation.
Chatham	1,874	81	1	51	184	39	4	7	1	700	700			1		1909	Normal school and special kindergarten training.
Cliffside Park	3,394	146	2	149	194	101	4	6	4	(5)	(5)		550	2	Yes...	1906	Special kindergarten license approved by State superintendent.
Clifton	8,100	348	10	512	193	467	4	7	9	575	500			2	Yes...	(3)	Special kindergarten training.
East Orange	34,371	1,478	18	658	186	404	4	6	18	900	600	600	400	2	Yes...	(3)	Graduation from high school; graduation from 2 years' kindergarten training school.

[1] In some cases two sessions. [2] Not fixed; depends on development. [3] No data. [4] Estimated. [5] No standard; depends on efficiency.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
NEW JERSEY—contd.																	
East Rutherford	4,275	184	6	135	189	81	4	7	3	$900	$600	.....	.....	2	Yes...	1893	Normal or kindergarten training school.
Egg Harbor	2,181	94	2	42	187	35	5	6	1	675	.....	.....	.....	2	Yes...	1892	No standard.
Englewood	9,924	428	5	224	185	129	4	6	8	850	600	$600	$500	1	.....	1895	High-school graduation; 2 years' kindergarten training school.
Fairview	2,441	105	4	118	189	106	4	7	3	625	525	.....	.....	2	Yes...	(1)	Special kindergarten certificate; 2 years' special training.
Flemington	2,693	116	2	35	186	30	4	7	1	600	600	.....	.....	2	Yes...	1900	Normal kindergarten training.
Garfield	10,213	439	4	324	193	237	4	7	4	750	450	750	450	2	Yes...	1902	High-school graduation; 2 years' normal.
Garwood	1,118	48	1	53	184	29	4	7	1	675	600	.....	.....	1	.....	1908	New Jersey special kindergarten certificate.
Glen Ridge	3,260	140	3	135	181	81	4	6	4	950	650	700	600	1	.....	1893	Kindergarten training school graduation.
Hackensack	14,050	604	4	402	186	336	4	7	12	900	700	800	500	2	Yes...	1894	Special kindergarten certificate.
Hackettstown	2,715	117	1	56	184	35	5	[2]5½	1	500	.....	.....	.....	2	Yes...	1907	(1)
Haddonfield	4,142	178	2	56	182	25	4	(1)	1	550	550	.....	.....	2	Yes...	1908	High-school graduation; special kindergarten training.
Haledon	2,500	107	2	84	187	44	4	7	2	700	575	.....	.....	2	Yes...	1898	New Jersey special kindergarten certificate.
Hammonton	5,088	219	2	159	184	43	4	7	2	650	650	200	200	2	Yes...	1894	Graduation from approved kindergarten training school.
Hasbrouck Heights	2,155	93	2	63	189	37	4½	7	1	725	.....	.....	.....	2	Yes...	1898	Graduation from normal-school course.
Haworth	588	25	1	15	193	6	4	6	1	720	720	.....	.....	1	.....	(1)	General teacher's certificate and special kindergarten certificate.
Hawthorne	3,400	146	3	109	193	81	4	6	3	800	600	.....	.....	[3]2	Yes...	(1)	Kindergarten training school or normal school.
High Bridge	1,545	66	2	42	185	25	4	7	1	525	525	.....	.....	2	Yes...	1903	Kindergarten training teacher's certificate.
Hoboken	70,324	3,024	18	852	194	[4]639	4	7	18	1,200	900	1,200	600	2	Yes...	1897	Normal-school graduation; special kindergarten certificate.
Jamesburg	2,075	89	2	72	190	50	5	(5)	1	500	500	.....	.....	2	Yes...	(1)	State normal kindergarten course.

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Jersey City	267,779	11,514	10	545	194	293	4	[3]6	6	1,200	600	600	600	2	Yes	1899	High-school graduation; 2 years' kindergarten training experience.
Kearney	18,659	802	5	139	191	[4]97	4	[3]6	5	900	600	.....	.....	[6]1	Yes	1905	Kindergarten normal; State requirements.
Leonia	1,486	64	1	31	188	15	4	([1])	1	600	.....	.....	.....	1	.....	1905	State certificate.
Little Ferry	2,541	109	2	100	189	54	4	7	2	600	550	.....	.....	1	.....	1909	High-school graduation; kindergarten certificate.
Lodi	4,138	178	4	244	188	135	4	6	3	700	550	600	550	2	Yes	1902	Graduation from kindergarten training school.
Long Branch	13,298	572	6	229	188	160	4	[3]6	4	800	600	.....	550	2	Yes	1899	Graduation from excellent kindergarten training school.
Matawan	1,646	71	2	89	179	65	5	([1])	1	550	.....	.....	.....	2	Yes	1895	Trained teacher.
Midland Park	2,001	86	2	89	190	52	4	[3]6	1	700	.....	.....	.....	2	Yes	1901	Two years' kindergarten training.
Millburn	3,720	159	2	81	189	69	4	6	3	650	500	400	400	1	.....	1900	Graduation from kindergarten training class.
Montclair	21,550	927	14	375	183	214	4	6	14	875	600	800	500	2	Yes	1889	Graduation from kindergarten training school; 2 years' experience.
New Brunswick	23,388	1,006	2	154	187	100	4	[3]6	2	750	600	300	.....	2	Yes	1899	State kindergarten certificate; graduation from approved normal.
New Providence	893	37	1	43	190	32	4	6	1	([1])	([1])	.....	.....	1	.....	1908	Normal-school graduation.
Newark	347,469	14,940	102	9,291	192	4,579	4	6	118	1,100	580	1,050	580	2	Yes	1896	High-school graduation or equivalent; graduation from approved training school.
Newton	4,467	192	4	103	187	80	4	7	2	550	500	.....	.....	2	Yes	1899	Normal-school training.
Nutley	6,009	258	3	129	187	90	4½	6½	4	800	550	.....	550	1	.....	1904	High-school graduation; kindergarten training-school graduation.
Orange	29,630	1,274	12	716	190	386	4	6	13	800	725	600	275	2	Yes	1899	High-school graduation; kindergarten normal-school graduation.
Palisades Park	1,411	61	2	46	197	39	5	[3]6	1	625	500	.....	.....	2	Yes	1908	State kindergarten certificate; kindergarten training school.
Palmyra	3,000	129	2	108	184	75	5	6	2	450	400	.....	.....	2	Yes	1903	Special training in kindergarten school.
Park Ridge	1,401	60	2	36	187	17	4	7	1	550	550	.....	.....	2	Yes	1902	High-school graduation; kindergarten normal graduation; State certificate.
Passaic	54,773	2,355	18	1,148	189	600	4	[3]6	17	900	550	.....	.....	2	Yes	1889	High-school graduation; graduation from approved kindergarten training school.
Paterson	125,600	5,401	24	2,087	193	[4]1,700	4½	6	24	850	475	.....	.....	2	Yes	1884	High-school graduation; 2 years' professional training.
Perth Amboy	32,121	1,381	14	608	190	413	4	7	8	950	500	400	400	2	Yes	1906	High-school graduation; graduation from recognized kindergarten training school.
Plainfield, including North Plainfield.	26,667	1,147	16	500	180	270	4	6	16	900	540	810	540	2	Yes	1890	High-school graduation; special kindergarten course.
Point Pleasant	1,003	43	1	30	187	15	4	7	1	525	525	.....	.....	1	.....	1908	Normal-school graduation.
Princeton	5,136	221	3	101	183	82	4	7	3	650	525	.....	.....	2	Yes	1895	Special kindergarten State certificate.
Prospect Park	2,719	117	2	82	190	51	4	[3]5	1	450	450	.....	.....	2	Yes	1899	Kindergarten training-school graduation; county or State examination.
Ridgewood	5,416	233	3	107	190	58	4	7	3	800	675	.....	.....	1	Yes	1894	State license for kindergarten teachers.
Riverton	1,788	77	1	38	183	22	4	6	1	650	.....	.....	.....	1	.....	1897	High-school graduation; State certificate.
Roselle	2,725	117	4	100	195	[7]60	4	7	2	675	600	.....	.....	2	Yes	([1])	Graduation from approved school.
Roselle Park	3,138	135	2	90	184	59	4	[3]6	2	700	.....	400	.....	2	Yes	1909	College or normal graduation.

[1] No data.
[2] First half year in kindergarten work; last half year in first-grade work.
[3] Kindergarten in forenoon, first-grade work for advanced children in afternoon.
[4] Estimated.
[5] Not fixed; depends on development.
[6] In some cases two sessions.
[7] Approximate.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
NEW JERSEY—contd.																	
Rutherford	7,045	303	3	170	188	107	4	7	3	$800	$525	.....	.....	[1] 2	Yes...	1890	High-school graduation; kindergarten training-school graduation; 2 years' experience.
Salem	6,614	284	2	58	185	24	4	7	1	550	.....	.....	.....	2	Yes...	(2)	Four years' approved high school; examination in kindergarten work.
Scotch Plains	1,000	43	1	36	184	23	4	6	1	650	.....	.....	.....	1	.....	1909	State or county special certificate.
Sea Bright	1,220	52	2	56	182	34	4	[3] 6	1	675	600	.....	.....	2	Yes...	[4] 1901	High-school graduation; kindergarten training-school graduation.
Somerville	5,060	218	4	115	188	57	4	6	3	650	625	$200	.....	2	Yes...	1904	Kindergarten training school graduation.
South Orange	6,014	259	3	154	189	82	4	[3] 6	5	875	600	500	$400	1	.....	1900	High-school graduation; 2 years' normal training.
South River	4,772	205	6	128	185	90	4	7	3	600	550	.....	.....	2	Yes...	1908	High-school graduation; special normal or kindergarten training.
Springfield	1,278	54	1	49	189	32	4	7	1	650	500	.....	.....	2	Yes...	1901	High-school graduation; kindergarten training-school graduation.
Sussex	1,212	52	3	[4] 150	192	[4] 112	4	(2)	4	650	500	500	500	2	Yes...	(2)	Special kindergarten certificate.
Tenafly	2,756	118	1	51	195	22	4	6	1	750	.....	.....	.....	1	.....	1900	Graduation from kindergarten training school or normal.
Totowa	1,130	49	2	42	192	25	4	6	1	600	450	.....	.....	2	Yes...	1905	Graduation from normal or kindergarten training school.
Trenton	96,815	4,163	54	1,969	192	1,173	4	[3] 6	55	840	440	840	440	2	Yes...	1888	Graduation from high school; graduation from kindergarten training or normal school.
Verona	1,075	72	1	35	188	17	4	6	1	700	700	.....	.....	1	.....	1904	Normal-school training.
Wallington	3,448	191	2	127	190	64	4	6	1	600	575	.....	.....	2	Yes...	1899	Graduation from kindergarten training school.
West Hoboken	35,408	1,522	10	409	193	360	4	7	6	996	636	.....	.....	2	Yes...	1901	Normal-school training.
West New York	13,560	583	5	292	196	140	4	7	4	950	500	.....	.....	2	Yes...	1903	Kindergarten certificate.
Westfield	6,420	276	4	143	181	[4] 106	4	[3] 6	5	650	600	400	400	1	.....	1895	High-school graduation; 2 years' approved kindergarten training.

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Woodlawn	2,399	102	2	66	168	43	4	7	1	720	.....	.....	.....	2	Yes...	1900	Graduation from kindergarten training school.
Woodridge	1,043	44	2	35	196	31	5	7	1	575	500	.....	.....	2	Yes...	1909	Normal-school and special training.
NEW MEXICO.																	
Santa Fe	5,072	218	2	30	180	24	5	7	1	650	650	.....	.....	2	Yes...	1902	Special kindergarten training.
NEW YORK.																	
Akron	1,677	71	2	72	195	40	4½	(2)	1	480	400	.....	.....	2	Yes...	1902	Normal-school graduation.
Albany	100,253	4,310	26	1,098	185	615	4	6	33	800	500	277	.....	1	.....	1892	Graduation from training school approved by State board.
Allegany	1,286	55	1	21	190	13	4	(2)	1	475	425	.....	.....	2	Yes...	1900	Normal training course.
Amsterdam	31,267	1,344	6	451	192	360	5	6½	6	550	450	.....	.....	1	.....	1902	Graduation from kindergarten training school.
Auburn	34,668	1,490	8	262	187	151	4	6	8	600	400	550	400	[5]1	Yes...	1899	Diploma of normal school or equivalent.
Binghamton	48,443	2,083	14	738	194	468	4	6	25	600	400	500	400	2	Yes...	1893	Normal-school graduation.
Brocton	1,181	50	1	30	190	15	5	6	1	475	.....	.....	.....	1	.....	1895	Graduation from kindergarten course in State normal.
Bronxville	1,863	79	1	38	186	26	4	6	2	1,000	500	300	.....	1	.....	1905	Graduation from recognized kindergarten training school.
Buffalo	423,715	18,219	53	[6]3,100	192	2,256	4	(2)	77	900	500	600	400	2	Yes...	1892	High-school graduation; kindergarten training-school graduation.
Canajoharie	2,273	97	2	40	188	33	5	(2)	1	600	570	.....	.....	2	Yes...	1908	Graduation from kindergarten department, normal school.
Canton	2,701	116	2	35	192	23	4	6	1	550	500	.....	.....	2	Yes...	1903	Graduation from normal or kindergarten training school.
Catskill	5,296	227	2	45	190	23	4	7	1	500	500	.....	.....	2	Yes...	[4]1900	State certificate.
Cattaraugus	1,165	49	2	31	186	22	4	6	1	450	400	.....	.....	2	Yes...	1897	Graduation from normal school.
Cohoes	24,709	1,062	4	163	191	85	4	6	[6]4	550	550	.....	.....	1	.....	1885	State kindergarten certificate.
Cortland	11,504	494	1	35	187	23	5	6	1	600	400	.....	.....	1	.....	1899	Normal-school training.
Coxsackie	2,494	107	1	51	187	39	5	7	1	450	450	.....	.....	2	Yes...	1907	Normal school graduation.
Dansville	3,938	168	1	36	[6]180	20	4½	6	1	450	.....	.....	.....	1	.....	1912	Normal-school training.
Delhi	1,736	74	1	30	190	25	4	5	1	425	425	.....	.....	1	.....	1902	Do.
Dolgeville	2,685	154	1	55	189	39	4½	6	1	450	383	.....	.....	(2)	.....	1890	Normal graduation.
Dunkirk	17,221	740	5	249	191	147	4½	6	5	600	400	.....	.....	2	Yes...	1905	Graduation from normal kindergarten course.
East Aurora	2,781	119	1	46	192	30	4	6	2	500	500	.....	.....	1	.....	1893	State kindergarten license.
East Rockaway	1,200	51	1	21	188	17	4	6	1	250	.....	.....	.....	1	.....	1910	Graduation from some good normal.
East Syracuse	3,274	140	2	90	200	60	5	6	1	550	500	.....	.....	2	Yes...	1900	New York State license.
Fishkill on Hudson	3,902	167	2	74	190	66	5	(2)	1	600	550	.....	.....	2	Yes...	1907	Course in recognized kindergarten training school.
Fort Edward	3,762	161	2	106	193	80	4½	6	4	600	.....	440	.....	1	.....	1893	Graduation from State normal.
Fredonia	5,285	227	2	86	192	63	4	6	2	500	400	500	400	2	Yes...	1895	Diploma of kindergarten normal school.
Freeport	4,836	207	5	182	187	89	4	6	3	700	600	.....	.....	2	Yes...	1894	Normal-school training or equivalent.
Garden City	(2)	.....	1	23	179	17	4	6	1	660	.....	.....	.....	1	.....	1902	Two years' training course; special certificate.

[1] Kindergarten in forenoon, first-grade work for advanced children in afternoon.
[2] No data.
[3] Not fixed; depends on development.
[4] Approximate.
[5] In some cases two sessions.
[6] Estimated.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
NEW YORK—contd.																	
Geneva	12,446	535	4	296	191	171	4	6	6	$625	$450	$525	$400	1	.....	1894	Kindergarten certificate.
Glen Cove	8,000	344	2	[1] 115	189	73	4	(2)	3	650	500	650	500	2	Yes...	(2)	State license.
Gloversville	20,642	887	7	[1] 258	192	[1] 192	5	6	7	550	450	.....	.....	2	Yes...	[4] 1889	Normal-school diploma or State standard.
Gowanda	2,012	86	2	37	189	21	5	(2)	1	451	.....	.....	.....	2	Yes...	(2)	(3)
Greenport	3,089	132	2	82	187	41	4	6	1	725	725	.....	.....	2	Yes...	1897	State certificate based on kindergarten training.
Hempstead	4,964	213	2	34	186	21	4	6	2	700	600	700	600	1	.....	1900	Graduation from normal or kindergarten training school.
Herkimer	7,520	323	3	105	189	62	4½	6½	2	575	500	.....	.....	1	.....	1907	Normal kindergarten or special kindergarten course.
Hillburn	1,090	46	2	56	200	29	4	[2] 6	2	400	.....	.....	.....	1	.....	1909	Graduation from approved kindergarten training school.
Hornell	13,617	585	5	222	190	168	4	(2)	5	600	450	.....	.....	2	Yes...	1898	Graduation from State normal.
Hudson Falls	5,189	222	1	67	200	[1] 45	4	6	2	475	.....	100	.....	1	.....	(2)	(3)
Ilion	6,588	282	3	159	187	61	4½	7	3	500	450	.....	[5] 100	2	Yes...	[4] 1904	Normal-school graduation.
Irvington	2,319	99	1	24	191	15	4	6	1	725	.....	.....	.....	2	Yes...	1904	Graduation from standard kindergarten training school.
Ithaca	14,802	636	5	140	196	86	4	(2)	5	600	450	.....	.....	2	Yes...	1903	Normal-school graduation.
Jamestown	31,297	1,345	9	684	194	449	5	6	13	600	450	450	.....	2	Yes...	1893	Graduation from kindergarten training school.
Johnstown	10,447	449	4	152	190	122	5	(2)	4	575	500	.....	.....	2	Yes...	1900	Normal-school graduation.
Keeseville	1,835	78	1	20	189	16	4	8	1	500	.....	.....	.....	2	Yes...	1900	Some special training.
Kenmore	1,020	43	2	44	193	37	4	6	1	700	500	600	400	2	Yes...	1910	Kindergarten normal course.
Lackawanna	14,549	625	2	91	191	42	4½	6	2	720	400	.....	.....	2	Yes...	1911	Normal certificate.
Lake Placid	1,682	72	2	62	190	36	4	5	1	550	450	.....	.....	2	Yes...	[4] 1905	Normal-school graduation.
Lancaster	4,364	187	1	30	187	15	4	6	1	580	400	.....	.....	1	.....	(2)	Normal kindergarten course.
Lansingburgh	(2)	.....	4	160	186	103	4	(3)	5	540	405	.....	.....	1	.....	1895	State license.
Lawrence	1,189	50	3	126	193	86	4	6	3	750	600	.....	.....	2	Yes...	1898	Normal training.
Le Roy	3,771	162	2	70	186	39	5	7	1	600	450	.....	.....	2	Yes...	1905	Normal course of 2 years.
Lesterahire	3,775	162	2	102	192	73	5	(2)	2	500	450	.....	.....	2	Yes...	1907	Normal course or equivalent.

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Little Falls	12,273	537	5	206	186	110	3	(2)	3	600	500	.....	.....		Yes...	1896	State certificate.
Little Valley	1,368	58	1	28	193	23	4	(2)	1	500	400	.....	.....	1	.....	(3)	Normal school certificate.
Lockport	17,970	772	8	200	188	102	4	8	4	500	400	.....	.....	2	Yes...	1896	Graduation from approved kindergarten training school.
Lynbrook	.....	.....	1	54	148	21	4½	6	1	575	575	.....	.....	1	.....	1893	Kindergarten and primary course.
Lyons	4,460	191	2	95	193	64	4	36	1	500	500	.....	.....	2	Yes...	1909	Diploma of kindergarten normal school.
Matteawan	6,727	288	2	71	185	54	5	7	2	(3)	500	.....	6 100	2	Yes...	1898	Normal, special kindergarten work.
Medina	5,683	244	4	100	196	80	5	7	2	500	450	.....	.....	2	Yes...	1903	Normal or kindergarten training school.
Millbrook	1,136	48	1	35	190	16	5	7	1	500	500	.....	.....	1	.....	1904	Normal-school graduation.
Mineola	1,981	85	1	55	198	32	5	7	1	700	600	.....	.....	1	.....	1909	Normal training school graduation.
Mount Vernon	30,919	1,329	10	460	190	191	4	6	11	1,200	600	600	600	1	.....	1906	High-school graduation or equivalent; normal or approved training school.
New Paltz	1,230	52	1	25	180	14	4	6	1	.....	900	.....	.....	1	.....	(3)	Normal training.
New Rochelle	28,867	1,241	14	721	185	341	4	46	16	7 1,050	600	850	600	2	Yes...	1893	Two years' professional training; State license.
New York	4,766,883	204,975	847	52,226	192	23,158	4	46	834	1,250	600	.....	.....	2	Yes...	1893	High-school graduation; 2 years' professional training.
Niagara Falls	30,445	1,309	10	625	193	372	4½	(2)	18	600	500	400	350	2	Yes...	1891	(3)
North Tarrytown	5,421	233	2	114	190	45	4	6	2	725	600	.....	(3)	2	Yes...	1906	Two years' training; State license.
North Tonawanda	11,955	514	8	323	198	153	4	46	5	700	450	.....	.....	2	Yes...	1900	Graduation from kindergarten State or city normal.
Nyack	4,619	198	8 1	68	190	33	4	6	1	700	650	.....	.....	2	Yes...	1891	Graduation from kindergarten training school.
Olean	14,743	633	7	300	190	222	5	(2)	7	600	450	.....	.....	2	Yes...	4 1898	Normal diploma.
Oneonta	9,491	318	1	48	189	26	4	6	1	525	.....	.....	.....	1	.....	(3)	Normal-school graduation.
Ossining	11,480	493	1 3	99	192	57	4	6	3	750	500	.....	.....	2	Yes...	1898	Normal-school graduation.
Owego	4,633	199	1	1 44	189	33	4	36	1	500	.....	.....	.....	2	Yes...	1909	Normal training.
Peekskill, dist. No. 8	15,245	655	4	124	186	92	5	6	2	650	550	.....	.....	2	Yes...	1907	State license.
Pelham	681	31	2	1 79	187	1 42	4½	(2)	2	600	.....	500	.....	2	Yes...	1907	State requirements.
Perry	4,388	716	1	64	188	39	5	(3)	1	450	.....	.....	.....	2	Yes...	1902	Normal-school graduation.
Piermont	1,380	64	1	48	188	36	5	(3)	1	700	550	.....	.....	1	.....	1900	Do.
Plattsburg	11,138	523	4	145	190	84	5	6	4	500	400	.....	.....	9 2	Yes...	1902	Diploma of normal school.
Pleasantville	2,207	103	1	35	200	20	5	(2)	1	650	.....	.....	.....	1	.....	1906	State normal school.
Port Chester	12,809	602	5	403	190	307	5	7	8	1,000	650	650	500	2	Yes...	1888	(1)
Port Jervis	9,564	449	2	59	192	36	5	(2)	2	600	450	.....	.....	2	Yes...	1909	Special training in recognized kindergarten training school.
Poughkeepsie	27,936	1,312	7	345	192	1 258	5	(2)	7	600	500	.....	.....	1	.....	(3)	Normal-school graduation.
Rensselaer	10,711	460	2	107	188	80	4	6	2	550	550	.....	.....	1	.....	1902	Diploma of normal school.
Rochester	218,149	9,380	68	2,524	196	2,068	4	6	89	1,050	550	950	500	2	Yes...	1888	Two years' normal training.
Rockville Center	3,667	157	2	109	188	49	4	(2)	2	750	.....	.....	.....	2	Yes...	1897	Kindergarten training.
Rome	20,497	881	10	280	185	250	5	7	6	500	450	.....	.....	2	Yes...	1893	Kindergarten teacher's certificate.
Rye	3,964	170	3	76	189	55	5	(2)	3	700	400	.....	.....	1	.....	1899	State license.
Salem	1,250	53	1	15	190	11	5	7	1	550	.....	.....	.....	2	Yes...	1910	Normal-school training.
Saratoga Springs	12,693	545	5	170	190	158	4½	6	8	600	400	.....	.....	1	.....	1892	New York State kindergarten certificate.
Schenectady	72,826	3,131	18	618	189	412	4	6	18	750	500	.....	.....	1	.....	1897	Graduation from normal or approved kindergarten training school.

[1] Estimated.
[2] Not fixed; depends on development.
[3] No data.
[4] Approximate.
[5] Untrained assistant.
[6] For musician.
[7] Largest salaries for teachers of two sessions; smallest salaries for teachers of one session.
[8] First half-year in kindergarten work, last half-year in first-grade work.
[9] Kindergarten in forenoon; first-grade work for advanced children in afternoon.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
NEW YORK—contd.																	
Scotia	2,957	126	1	102	188	30	4	6	1	$650	$550	.....	.....	1	.....	1903	Normal kindergarten course.
Seneca Falls	6,588	282	2	74	187	38	4	6	1	550	.....	.....	.....	2	Yes...	1905	Normal-school training.
Solvay	5,139	220	2	86	185	80	4	6	2	750	550	.....	.....	2	Yes...	1898	State license.
South Glens Falls	2,247	96	2	71	190	43	4	6	1	450	450	.....	.....	2	Yes...	1907	Normal kindergarten certificate.
Spring Valley	2,353	101	1	[1] 30	189	23	5	8	1	570	522	.....	.....	1	.....	1908	Normal-school graduation.
Syracuse	137,249	5,901	29	2,143	200	1,878	4	([2])	42	750	400	$750	$400	2	Yes...	1894	High-school graduation; 2 years' training in kindergarten.
Tarrytown	5,600	240	1	90	186	54	5	7	2	800	650	.....	600	1	.....	1900	Graduation from normal school in New York State.
Tonawanda	8,290	356	4	118	193	74	4	6	2	600	400	.....	.....	2	Yes...	1908	Kindergarten course in normal school.
Troy	76,813	3,302	12	667	187	312	4	6	20	650	400	650	400	1	.....	1898	High-school graduation; kindergarten training school graduation.
Tuckahoe	2,722	116	4	120	190	80	5	6	[3] 4	900	600	500	500	1	.....	1890	State kindergarten certificate.
Utica	74,419	3,200	[3] 30	1,498	191	787	4	6	20	700	450	700	450	2	Yes...	1893	Normal-school graduation.
Walden	4,004	172	1	110	192	48	5	([3])	1	500	450	.....	.....	2	Yes...	[1] 1905	State normal school license.
Warsaw	3,206	137	1	42	187	25	4	6	1	550	550	.....	.....	1	.....	1896	Normal-school graduation.
Waterford	3,245	139	2	67	185	33	4	6	1	525	.....	.....	.....	2	Yes...	1910	Kindergarten training or normal-school graduation.
Waterloo	3,931	168	2	50	190	35	4	6	2	600	450	.....	.....	1	.....	([4])	Graduation from normal kindergarten course.
Watertown	26,730	1,149	9	407	189	257	4½	6	11	500	460	500	460	[5] 2	Yes...	1901	Normal-school graduation.
Watervliet	15,074	648	3	106	187	60	4	6	3	550	450	.....	.....	1	.....	1898	Kindergarten diploma from normal or training school.
Wellsville	4,382	188	2	79	192	[1] 55	4	6	2	500	.....	250	.....	1	.....	1910	Normal-school training.
Westfield	2,985	128	1	96	186	39	4	6	2	600	400	400	320	1	.....	1897	State certificate.
White Plains	15,949	685	6	219	190	[3] 150	5	([2])	8	900	650	.....	.....	2	Yes...	1893	Normal-school graduation.
Yonkers	79,803	3,431	18	1,072	190	584	4	6	23	750	500	750	500	2	Yes...	1890	Graduation from high school; approved kindergarten training school certificate.

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NORTH CAROLINA.																
Asheville	18,762	806	5	373	190	150	3	6	10	390	250	300	250	1	.....	1907	Graduation from kindergarten training school.
Washington	6,211	267	1	53	157	48	5	6	2	520	240	240	240	1	.....	1909	Diploma of kindergarten training school.
NORTH DAKOTA.																
Beach	1,003	43	1	43	176	32	6	7	1	675	.....	.....	.....	[5] 2	Yes...	(4)	Graduation from kindergarten training school.
Cooperstown	1,019	43	[5] 1	26	180	20	5½	[1] 7	1	900	675	.....	.....	2	Yes...	1908	Normal-school training; 1 year's special kindergarten training.
Litchville	484	20	1	23	60	20	4	6	1	600	.....	.....	.....	1	.....	June, 1912	(4)
OHIO.																
Akron	69,067	2,969	[6] 30	1,551	190	805	5	6	20	800	500	.....	.....	[7] 1	Yes...	1902	High-school graduation; kindergarten training-school graduation.
Barberton	9,410	404	2	60	183	48	5	6	1	570	.....	.....	.....	2	Yes...	1911	Graduation from kindergarten college.
Bellevue	5,209	223	2	64	176	45	4½	6	1	360	.....	.....	.....	2	Yes...	1911	Graduation from kindergarten training school.
Canton	50,217	2,159	3	112	185	74	4	6	3	900	500	200	200	1	.....	1900	Do.
Cincinnati	363,591	15,634	46	2,833	200	1,883	4½	6	72	[8] 1,000	[8] 600	500	300	1	.....	1905	High-school training; 2 years' professional training.
Cleveland	560,663	24,108	142	5,163	173	4,124	5	6	127	1,055	583	686	583	2	Yes...	1897	Graduation from kindergarten training school.
Dayton	116,577	5,012	23	1,287	190	721	5	6	21	700	500	.....	.....	2	Yes...	(4)	High-school graduation; 2 years' normal training.
Delaware	9,076	390	1	38	180	26	4½	6	1	500	400	.....	(9)	2	Yes...	1897	Graduation from approved kindergarten training school.
Elyria	14,825	637	6	182	185	172	5	6	6	600	500	.....	(9)	1	.....	1908	Graduation after 2 years' kindergarten course.
Fostoria	9,597	412	4	110	174	65	4	7	2	495	405	.....	.....	2	Yes...	1905	Graduation from training school.
Geneva	2,496	107	1	42	184	30	4	[1] 6	2	619	.....	.....	.....	1	.....	1896	Graduation from kindergarten training school.
Greeneville	6,237	267	2	54	180	31	4	[1] 6	2	630	540	540	540	2	Yes...	1905	Graduation from approved kindergarten school or college.
Lakewood	15,181	652	4	245	175	140	5	6	5	711	567	495	.....	2	Yes...	1906	Graduation from kindergarten training school.
Lebanon	2,698	115	1	41	190	35	5	6	2	600	500	600	500	1	.....	1893	Graduation from Cincinnati kindergarten training school.
Lockland	3,439	147	1	51	195	38	5	6	1	850	550	.....	.....	1	.....	1902	Graduation from college; special training.
Mansfield	20,768	893	8	341	175	[1] 224	4	6	16	360	360	225	90	1	.....	1896	Graduation from kindergarten training school.
Medina	2,734	117	1	36	180	27	4	6	1	600	600	.....	.....	1	.....	1907	Two years' special training.
Napoleon	4,007	172	2	51	178	45	4	6	1	495	.....	.....	.....	2	Yes...	(4)	Graduation from recognized training course.

[1] Approximate.
[2] Not fixed; depends on development.
[3] Estimated.
[4] No data.
[5] Kindergarten part time and some first-grade work; different children.
[6] First half year in kindergarten work; last half year in first-grade work.
[7] In some cases two sessions.
[8] Highest salary for university graduate, lowest salary for high-school graduate.
[9] Cadets from training school.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
OHIO—continued.																	
Norwalk	7,858	337	1	76	185	40	5	6	1	$570	.....	$238	.....	2	Yes...	1906	Graduation from high school; graduation from kindergarten training school.
Norwood	16,185	695	4	[1] 160	193	133	5	(2)	7	750	$450	.....	$400	1	.....	1903	Graduation from recognized training school.
Oxford	2,017	86	1	23	180	18	5	6	1	1,000	.....	.....	.....	1	.....	1909	Graduation from recognized kindergarten training school.
Portsmouth	23,481	1,009	4	[1] 160	[3] 160	[1] 100	4	6	4	320	200	.....	.....	1	.....	1911	Two years' training course.
St. Bernard	5,002	215	2	60	195	50	4½	5½	2	750	500	300	300	1	.....	1910	Graduation from recognized kindergarten training school.
Springfield	45,921	1,974	5	265	184	137	5	(2)	10	750	400	200	120	1	.....	1892	Graduation from 2 years' kindergarten training course.
Toledo	168,497	7,245	76	3,129	185	2,044	4½	6	80	850	400	650	400	2	Yes...	1901	Graduation from high school; graduation from Law kindergarten training school.
Washington Court House.	7,277	312	[4] 3	95	174	85	5½	(2)	3	575	400	.....	.....	2	Yes...	1904	High-school graduation; 1 year's State normal.
Wellington	2,131	91	1	30	180	20	4	6	(5)	.....	.....	.....	.....	1	.....	1910	
OKLAHOMA.																	
Blackwell	3,266	140	2	80	180	67	5	7	2	650	570	.....	.....	2	Yes...	1909	Diploma.
Frederick	3,027	130	1	72	180	60	4	6	.....	675	450	450	315	2	Yes...	1908	First-grade certificate.
Guthrie	11,654	501	6	355	175	200	4	6	6	630	540	270	135	1	.....	(6)	Graduation from kindergarten college.
Kiefer	1,197	51	2	60	176	51	3–6	7	2	675	630	.....	630	2	Yes...	1911	Two years' kindergarten training.
Oklahoma City	64,205	2,760	48	1,469	176	1,029	4	6	30	765	540	450	405	2	Yes...	1909	Graduation from kindergarten course; 1 year's experience.
PENNSYLVANIA.																	
Erie	66,525	2,688	3	276	190	150	4	6	6	532	427	450	420	1	.....	1900	Graduation from high school; graduation from approved kindergarten training school.

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Hyndman	1,164	49	1	64	160	55	6	(2)	1	480	480	.....	.....	2	Yes...	[2]1903	State normal graduation.
Johnstown	55,482	2,385	4	261	180	129	4	6	4	495	360	450	360	1	.....	1905	Graduation from recognized training school.
Kittanning	4,311	185	1	68	180	48	4	6	2	540	360	360	225	1	.....	1905	Graduation from approved kindergarten training school.
Kutztown	2,360	101	1	36	190	24	4	6	1	800	.....	.....	.....	1	.....	1906	Two years in good training school.
Lansdowne	4,066	174	1	50	200	40	4	6	3	700	300	475	300	1	.....	1896	Graduation from approved kindergarten training school.
Munhall	5,185	222	1	56	180	40	4	6	2	585	270	.....	.....	1	.....	1902	(6)
Philadelphia	1,549,008	66,607	245	7,666	200	[1] 6,125	3½	5½	244	900	620	.....	.....	[7] 1	.....	1887	High-school graduation; 2 years' kindergarten training.
Pittsburgh	533,905	22,957	106	4,284	200	3,206	4	6	178	[9] 1,000	[8] 650	[8] 550	[8] 500	[7] 1	.....	(6)	High-school graduation; kindergarten training; post-graduate for director.
Rankin	6,042	259	1	80	200	72	4	6	2	750	400	600	400	1	.....	1909	Two years' special normal training.
Scranton	129,867	5,584	30	1,149	192	798	4½	6	30	660	495	.....	.....	1	.....	1899	High-school graduation; graduate from approved kindergarten training school
Sewickley	4,479	192	1	50	180	26	4	6	2	675	405	450	405	1	.....	1904	Graduation from kindergarten college.
Somerset	2,612	112	1	38	160	25	4	6	2	320	320	[9] 120	[9] 120	1	.....	1909	Course in kindergarten training.
South Bethlehem	19,973	858	7	350	200	320	5	6	7	525	.....	.....	.....	2	Yes...	1906	(6)
Tarentum	7,414	318	1	65	180	50	4	7	1	485	.....	.....	.....	1	.....	1905	High-school graduation; 2 years' kindergarten training.
Titusville	8,533	366	4	187	186	113	3	[3] 6	8	[1] 550	[1] 500	[1] 550	[1] 500	1	.....	1899	High-school graduation from kindergarten training school.
Wilkes-Barre	67,105	2,885	4	194	185	140	5	6	4	[1] 665	[1] 380	.....	.....	1	.....	1903	Graduation from kindergarten training school.
RHODE ISLAND.																	
Cranston	21,107	907	4	300	184	120	4½	(2)	5	494	418	.....	.....	[7] 1	Yes...	(6)	Normal training.
Newport	27,149	1,167	10	241	190	168	4½	6	5	650	440	400	340	2	Yes...	1882	Normal training or special training.
Pawtucket	51,622	2,219	12	656	179	401	4	[3] 6	24	631	420	547	420	1	.....	1889	Rhode Island State certificate.
Providence	224,326	9,646	62	3,163	186	1,478	4½	6	59	[8] 750	[9] 500	[8] 500	[8] 400	[7] 1	.....	1887	Training school; normal school.
Warwick	26,629	1,145	2	98	[1] 200	78	4	5	2	[1] 560	[1] 450	.....	.....	2	Yes...	1908	Normal-school graduation.
Woonsocket	38,125	1,639	3	97	179	61	3½	6	3	500	400	.....	.....	1	.....	1897	Graduation from high school; graduation from kindergarten training school.
SOUTH CAROLINA.																	
Lancaster	2,098	89	1	[1] 60	180	[1] 45	3½	6	1	360	.....	.....	.....	1	Yes...	(6)	(6)
SOUTH DAKOTA.																	
Sioux Falls	14,094	606	4	194	183	89	5	6	4	750	650	.....	.....	2	Yes...	1904	Graduation from approved kindergarten training school; experience.
TENNESSEE.																	
Knoxville	36,346	1,562	3	196	177	165	5	6	4	500	400	.....	.....	1	.....	1910	Preliminary work under supervisor.

[1] Estimated.
[2] Not fixed; depends on development.
[3] Approximate.
[4] Kindergarten part time and some first-grade work; different children.
[5] Cadets from training school.
[6] No data.
[7] In some cases two sessions.
[8] Largest salaries for teachers of two sessions; smallest salaries for teachers of one session.
[9] For musician.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kindergarten teachers.		One or two sessions a day.	Same teachers in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
TEXAS.																	
El Paso	39,279	1,688	4	229	176	124	6	8	4	$900	$803	$661	.....	1	.....	1894	Graduation from kindergarten training school; approved by State educational department.
Fort Worth	73,312	3,152	8	[2] 320	[1] 180	[1] 175	5	7	8	450	450	(3)	(3)	1	.....	1910	High-school graduation or equivalent; graduation from kindergarten training school.
Texarkana	9,790	420	1	28	140	[2] 24	5	7	1	455	435	435	.....	1	.....	(4)	(4)
UTAH.																	
Eureka	3,416	146	1	60	175	45	5	6	1	900	540	.....	.....	2	Yes...	1909	Normal graduate.
Ogden	25,580	1,099	10	365	176	310	4	6	10	900	500	300	$300	1	.....	1904	High-school graduation; 2 years' training.
Park City	3,439	147	3	85	173	[2] 65	4	7	3	630	485	.....	.....	1	.....	[1] 1906	State standard.
Salina	1,082	46	1	40	150	34	6	(4)	1	[2] 520	[2] 480	.....	.....	1	.....	(4)	Graduation from kindergarten State normal.
Salt Lake City	92,777	3,989	18	1,351	177	766	4	5	25	1,020	600	540	480	2	Yes...	1906	Normal course or equivalent.
VERMONT.																	
Burlington	20,468	880	6	150	180	125	3	5	10	374	262	216	180	1	.....	1893	Graduation from kindergarten school.
Montpelier	7,856	337	1	42	171	29	4	(5)	2	600	500	500	450	1	.....	1901	Normal training.
Newport	3,684	158	1	31	175	26	4	(5)	1	405	405	.....	.....	1	.....	1896	Graduation from kindergarten training school.
Poultney	3,644	156	3	75	175	[2] 57	5	7	3	540	384	480	384	2	Yes...	1909	Normal work.
St. Albans	6,381	274	2	106	175	62	4½	(4)	3	382	382	90	.....	1	.....	(4)	Graduation from training school.
VIRGINIA.																	
Harrisonburg	4,879	209	2	78	177	48	4	6	2	900	360	.....	.....	1	.....	1909	Graduation from good normal school.
Onancock	1,001	43	1	38	180	34	5	8	1	315	.....	.....	.....	2	Yes...	(4)	(4)
Richmond	127,628	5,488	15	718	181	449	5	7	22	585	450	495	360	1	.....	1907	Graduation from kindergarten training school.

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WASHINGTON.																
North Yakima	14,082	605	4	169	180	79	5	6	2	800	650			2	Yes...	1909	Graduation from State kindergarten training school; experience.
Seattle	237,194	1,027	14	215	188	111	5	6	6	1,050	810			2	Yes...	1900	(4)
Sedro Woolley	2,129	91	2	30	174	22	4	6	1	648				2	Yes...	1912	Graduation from training school.
WISCONSIN.																	
Abbotsford	947	40	1	42	178	21	4	7	1	495	495			2	Yes...	1904	Graduation from kindergarten school.
Antigo	7,196	309	6	298	176	217	4	(4)	6	517	450			2	Yes...	(4)	Graduation from kindergarten training school.
Appleton	16,773	721	14	567	176	348	4	7	14	585	450	495	405	2	Yes...	1898	Graduation from kindergarten training school.
Arbor Vitae	1,502	64	1	[3] 20	179	15	4	[5] 7	1	540	540			2	Yes...	1898	Normal training.
Ashland	11,594	498	4	178	188	167	4	6	6	840	600	360	192	2	Yes...	(4)	Graduation from approved kindergarten training school.
Baraboo	6,324	271	2	64	176	56	4	6	2	495	432	135	135	2	Yes...	(4)	Graduation from kindergarten school.
Bayfield	(4)		2	87	177	53	4	6	2	450			247	2	Yes...	1892	Normal or special school graduation.
Beloit	15,125	650	11	540	185	268	4	6	12	570	475	285	238	2	Yes...	(4)	Graduaton after 2 years' training.
Benton	652	27	1	39	180	25	4	6	1	495				2	Yes...	1911	State normal; special training in kindergarten.
Berlin	4,636	199	4	81	190	60	4	6	2	550	500			2	Yes...	1900	Normal graduation.
Black River Falls	1,917	81	2	41	180	22	4	8	1	540	450			2	Yes...	1880	State license.
Bloomer	1,204	51	1	45	[1] 180	[1] 40	(4)		1	(4)				2		(4)	(4)
Bloomington	620	26	1	20	177	16	4	(5)	1	495	495			2	Yes...	1885	Normal graduation.
Boscobel	1,525	65	1	37	180	16	4	(5)	1	450	405			2	Yes...	1911	High-school graduation.
Brandon	684	29	1	12	188	8	4	7	1	456				1		1900	Normal training.
Cedarburg	498	21	2	68	196	45	4	6	1	550	450			2	Yes...	1909	Normal-school graduation.
Coleman	436	18	1	33	180	17	4	(5)	1	405	360			2	Yes...	1905	Second-grade certificate.
Columbus	2,523	108	2	60	187	35	4	[5] 6	2	[1] 522	[1] 475	[1] 190		2	Yes...	1902	Normal school course.
Crandon	1,833	78	1	57	176	30	4	6	1	495				2	Yes...	1909	High-school graduation and training-school graduation.
Cudahy	3,691	158	2	90	194	48	4	6	1	750				2	Yes...	1909	State normal diploma.
Delavan	2,450	105	2	48	180	24	4	6	1	585	585			2	Yes...	1901	Graduation from normal training.
De Pere	4,477	192	1	50	186	[3] 36	4	(4)	1	523	475			2	Yes...	1902	Normal-school graduation.
Dunbar	1,127	48	1	38	178	16	4	6	1	562				2	Yes...	1905	Kindergarten certificate.
Eau Claire	18,310	787	9	350	176	247	4	(4)	9	540	450			2	Yes...	(4)	Normal graduation.
Elkhorn	1,707	73	1	25	180	18	4	(4)	1	495				1		[1] 1892	College normal diploma.
Evansville	2,061	88	1	55	178	30	5	7	1	540	450	225	135	1		1903	Kindergarten training school.
Florence	1,838	78	1	45	185	34	4	6	1	546				(4)		(4)	Graduation from standard kindergarten training school.
Fond du Lac	18,797	808	16	611	185	367	4	(4)	16	560	475	250	225	2	Yes...	1897	High-school graduation; kindergarten training school graduation.
Grand Rapids	6,521	280	4	139	177	82	4	6	4	585	495	225	225	2	Yes...	1899	Graduation from standard kindergarten training school.
Green Bay	25,236	1,085	1	56	190	30	4	6	1	500	500	200	200	2	Yes...	1911	Graduation from Chicago kindergarten college.
Green Lake	563	24	1	20	180	15	4	6	1	495				2	Yes...	1910	Normal training.
Hancock	510	21	1	59	177	50	(5)	(5)	1	900				2	Yes...	1910	Third-grade certificate.
Hartford	2,982	128	1	61	180	56	4	6	1	540	405			2	Yes...	1903	Normal graduation.

[1] Approximate. [2] Cadets from training school. [3] Estimated. [4] No data. [5] Not fixed; depends on development.

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TABLE 5.—*Statistics of public-school kindergartens for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census of 1910.	Estimated population of kindergarten age.	Public-school kindergartens.	Children enrolled in public-school kindergartens.	School year in days.	Average daily attendance.	Age children may enter kindergarten.	Age children must leave kindergarten.	Kindergarten teachers.			Assistant kinnergarten teachers.		One or two sessions a day.	Same teacher in both sessions.	Public-school kindergarten established.	Preparation required of kindergarten teachers.
									Number.	Maximum salary.	Minimum salary.	Maximum salary.	Minimum salary.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
WISCONSIN—contd.																	
Two Rivers	4,850	208	2	142	198	103	4	6	3	$700	$500	$450	$200	2	Yes	1876	Graduation from State normal, or equivalent.
Viroqua	2,059	88	1	58	180	33	4	6	1	495	495	.....	.....	2	Yes	1904	Normal-school kindergarten training course.
Waukesha	8,740	375	4	173	180	98	4	6	4	500	475	275	200	1	.....	1908	Normal-kindergarten course.
Waupaca	2,789	119	2	75	180	65	4	6	1	522	.....	.....	.....	2	Yes	1910	Special normal course.
Waupun	3,362	144	2	65	190	60	4	6	2	600	500	300	200	2	Yes	(1)	(1)
Wausau	16,560	712	7	554	180	350	4	(2)	14	540	450	135	135	2	Yes	1898	Normal-school graduation.
Wausaukee	1,675	71	1	48	180	26	4	(2)	1	450	450	.....	.....	.....	Yes	1903	Normal-school graduation, kindergarten department.
Wauwatosa	3,346	143	1	125	183	59	4	8	2	700	500	550	450	2	Yes	(1)	Normal training.
West Allis	6,645	285	6	219	200	112	4	6	3	600	500	.....	.....	2	Yes	1907	Graduation from approved normal-training school.
Westboro	(1)	.....	1	[3] 53	179	[3] 30	4	6	1	540	450	.....	.....	1	.....	1906	Normal-kindergarten training.
West De Pere	891	38	2	42	180	[4] 20	4	(1)	2	450	450	.....	.....	2	Yes	(1)	Normal-school graduation, or equivalent.
West Milwaukee	1,458	62	1	150	200	90	4	6	2	575	450	.....	450	2	Yes	1906	Normal-school diploma.
WYOMING.																	
Casper	2,639	113	2	60	195	45	4	6	2	775	750	.....	.....	2	Yes	1906	Normal graduation.
Lauder	1,812	77	1	32	176	24	5	6	1	675	.....	.....	.....	2	Yes	1910	Two years' special training.
Rawlins	4,256	182	1	50	180	40	5	6	1	720	720	.....	.....	2	Yes	(1)	Special training.
Thermopolis	1,524	65	1	30	170	17	5	(1)	1	755	.....	.....	.....	2	Yes	(1)	(1)

[1] No data. [2] Not fixed; depends on development. [3] Approximate. [4] Estimated.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912.**

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ALABAMA.													
Anniston	12,794	550	Free	(1)	1	80	180	[2] 60	.....	2	$450	$64	Two years' kindergarten course.
Birmingham	133,685	5,705	Private	Graymont College Kindergarten.	1	40	175	25	$0.50	1	.....	.....	
Do	.....	.....	Mission	Church of St. Mary's-on-the-Highlands.	1	87	177	39	.....	2	585	.....	Diploma from recognized kindergarten training school.
Do	.....	.....	Private	Margaretta K. Williams Kindergarten.	1	46	170	29	4.00	2	.....	.....	[3]
Fairhope	590	25	.....do	School of Organic Education	1	30	155	15	.....	2	.....	.....	
Florence	6,689	287	Association	"Maud Lindsay" Kindergarten.	1	65	127	41	.....	2	.....	.....	[3]
Huntsville	7,611	327	.....do	Huntsville Kindergarten Association.	3	[2] 90	175	50	.....	3	540	.....	Two years kindergarten training school.
Lanett	3,820	164	Mill	Lanett Cotton Mills	[4] 1	[5] 125	[5] 180	[5] 40	.....	2	405	.....	
Montgomery	38,136	1,639	Association	Neighborhood House Association.	1	23	190	19	.....	1	500	400	Three years' training.
Shawmut	[3]	.....	Mill	West Point Manufacturing Co.	[4] 1	81	185	16	.....	1	405	.....	
Sheffield	4,865	208	Association	Sheffield Free Kindergarten Association.	1	[5] 25	120	[5] 20	.....	.....	.....	.....	

* In classifying kindergartens in normal schools and colleges, it is difficult to say whether they are public or private institutions. Strictly speaking, they are not public in the sense of being supported by the cities in which they are situated, and yet they are supported by State or county funds. Sometimes a tuition fee is asked. It has been decided therefore to place normal school kindergartens in the table other than public.

[1] Supported by donations.
[2] Estimated.
[3] No data.
[4] Statistics for year ended June, 1913.
[5] Approximate.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ARIZONA.													
Phoenix	11,134	478	Private	Garden Kindergarten	1	30	[1] 160	[1] 21	$5.00	1	.....	.....	
Truxton Canyon	.....	.....	Indian	Federal Government	1	35	132	33	.....	1	$660	.....	Civil-service examination.
ARKANSAS.													
Fort Smith	29,975	1,288	Private	Miss Denton's Kindergarten	1	15	180	6	3.00	1	.....	.....	
Do	.....	.....	Parochial	Immaculate Conception	2	80	[2]	70	.....	*2	.....	.....	[2]
Helena	8,772	377	Private	Helena Kindergarten	1	32	160	10	3.00	1	.....	.....	
Hot Springs	14,434	620	.....do	Miss Jane Gray's Kindergarten	1	50	160	12	3.00	1	.....	.....	
Texarkana	5,655	242	Association	Texarkana Kindergarten Association.	1	30	160	18	.....	1	520	.....	Graduation from recognized kindergarten training school.
CALIFORNIA.													
Alameda	23,383	1,005	Mission	Japanese Mission, M. E. Church School.	1	18	271	12	.....	1	.....	.....	
Berkeley	40,438	1,738	Parochial	St. Joseph's Parish	3	120	180	110	.....	*4	.....	.....	Normal-school training.
Coalinga	4,199	180	Private	Miss Robert's Kindergarten	1	20	150	10	[1] 3.00	1	.....	.....	
Fort Bidwell	362	15	Indian	Federal Government	1	20	186	[1] 17	.....	1	600	$600	Civil-service rating.
Fresno	24,892	1,070	Church	Seventh Day Adventists Church.	1	38	180	[1] 28	.....	2	765	765	Normal-school training.
Hollywood	1,400	60	Private	Mrs. Louise Peck's Kindergarten.	1	30	180	22	6.00	2	.....	.....	
Los Angeles	319,198	13,725	.....do	Berkeley Hall Junior School Kindergarten.	1	25	245	15	6.00	2	.....	.....	
Do	.....	.....	.....do	Los Angeles Academy and Maryland School.	1	19	175	12	7.50	1	.....	.....	
Do	.....	.....	Settlement	Neighborhood Settlement	1	70	186	25	.....	[3] 3	.....	.....	[3]
Do	.....	.....	Private	Westlake School for Girls	1	20	170	10	6.00	1	.....	.....	
Do	.....	.....	Association	Japanese Children's Institute	1	40	140	15	.....	2	420	210	Graduation from normal school.

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Oakland	150,174	6,457	.....do.....	Central Free Kindergarten Association.	1	70	198	35	.....	1	600	.....	Graduation from kindergarten training school.
Do	.....	.....	.....do.....	N. Oakland Free Kindergarten Association.	1	35	225	28	.....	2	480	[3] 120	Graduation from high school; graduate in kindergarten training school.
Do	.....	.....	.....do.....	W. Oakland Free Kindergarten Association.	1	127	191	48	.....	3	600	[3] 120	Do.
Do	.....	.....	Private.....	Cottage Hill	1	22	193	8	4.00	1	.....	.....	(2)
Do	.....	.....	.....do.....	Miss Merriman's Kindergarten	1	45	195	40	6.00	2	.....	.....	(2)
Pasadena	30,291	1,302	.....do.....	Polytechnic Elementary School.	1	8	152	[1] 7	[1] 6.00	1	.....	.....	(2)
Do	.....	.....	.....do.....	Broadoaks Kindgergarten	1	35	165	[1] 30	12.00	3	.....	.....	(2)
San Diego	39,578	1,701	.....do.....	Westgild School	1	21	175	12	5.00	1	.....	.....	(2)
San Francisco	416,912	18,027	Association.....	Golden Gate Kindergarten Association.	15	[1] 1,362	282	609	.....	15	720	540	Two years' course.
Do	.....	.....	.....do.....	Pioneer Kindergarten Society	2	140	(2)	125	.....	4	[1] 600	[1] 495	Normal-school training.
Do	.....	.....	.....do.....	Buford Free Kindergarten Society.	1	50	206	35	.....	2	480	240	Do.
COLORADO.													
Boulder	9,539	409	Private.....	Froebelian House School	1	9	170	7	5.00	1	.....	.....	(2)
Pueblo	44,395	1,908	Mill.....	Colorado Fuel and Iron Co	[5] 1	40	180	30	.....	1	540	.....	Graduation from kindergarten training school.
Trinidad	10,204	438	Private.....	Trinidad Kindergarten	1	32	200	16	2.50	1	.....	.....	(2)
CONNECTICUT.													
Bridgeport	102,054	4,388	Normal.....	Connecticut Froebel Normal Kindergarten and Primary.	1	22	175	18	4.00	5	.....	.....	(2)
Do	.....	.....	Normal.....	Smith Froebel Kindergarten	1	42	170	25	6.00	3	.....	.....	(2)
Do	.....	.....	Private.....	West End Private School	1	15	[1] 200	10	6.00	1	.....	.....	(2)
Danbury	23,502	1,010	Association.....	Opportunity Club	1	[5] 41	147	24	.....	2	540	360	Kindergarten training.
Hartford	98,915	4,253	Parochial.....	Parish Schools of Hartford	24	1,678	184	1,311	.....	[4] 49	.....	.....	Graduation from approved kindergarten training school.
Do	.....	.....	Private.....	The Little School	1	16	140	11	[1] 10.00	.....	.....	.....	(2)
Milford	4,366	187	.....do.....	Miss Warner's Kindergarten	1	6	184	4	4.00	1	.....	.....	
Mystic	4,500	193	.....do.....	Miss M. Louise Partridge	1	4	180	4	3.00	1	.....	.....	
New Britain	43,916	1,888	Parochial.....	St. Andrew's Lithuanian (R. C.).	1	30	[1] 180	[1] 30	.....	1	.....	.....	No special requirement.
New Canaan	3,667	157	Private.....	Miss Rogers's Kindergarten	1	9	152	5	7.00	1	.....	.....	(2)
New Haven	133,605	5,745	Association.....	Elm City Free Kindergarten Association.	2	[4] 120	182	[4] 96	.....	4	(2)	(2)	High-school and normal certificate.

[4] Teachers are Sisters.
[1] Approximate.
[2] No data.
[3] Practice students in kindergarten training school.
[4] Estimated.
[5] Statistics for year ended June, 1913.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
CONNECTICUT—contd.													
New Haven			Private	Miss Johnston's Kindergarten	1	5	177	5	$6.00	1			(1)
Do			do	Miss Lum's Private School	1	29	159	20	10.00	2			(1)
New Milford	5,010	215	do	Sunny Nook	1	20	170	18	2.50	1			(1)
Norwalk	24,211	1,041	Private	The Froebel Kindergarten	1	18	165	18	5.00	2			
Ridgefield	3,118	133	Free	Ridgefield Kindergarten Association.	1	43	180	28		2	$600	$270	Two years' approved kindergarten training.
South Norwalk	8,968	386	Private	Florence A. McMahon	1	15	180	10	5.00	1			
Stamford	28,836	1,239	Parochial	Holy Name of Jesus	[2]3	118	187	[3]92		[4]*4	500	250	State standard.
Do			Private	Miss Carrie W. Hoyt	1	21	160	16	3.75	2			
Taftville	(1)	(1)	Parochial	Sacred Heart Kindergarten	1	42	180	[2]30		*2			(1)
Wauregan	(1)		do	Sacred Heart of Jesus	1	66	189	[2]50		*1	200		Three years' preparation.
Winsted	7,754	333	Private	Miss Blake's Kindergarten	1	[2]35	171	11	(1)	1			(1)
DELAWARE.													
Wilmington	87,411	3,758	Private	Bouvelard Kindergarten	1	16	165	13	3.00	2			(1)
Do			do	Miss Taylor's Kindergarten	1	22	160	[2]18	5.00	1			(1)
Do			Association	The Provident Society	1	32	164	20		1	360		Graduation from approved kindergarten training school.
Do			Mission	Holy Trinity (Old Swede's)	1	47	181	32		2	360	90	Graduation from high school; graduation from kindergarten training school.
Do			Settlement	People's Settlement	1	[2]40	145	27		2	(1)		Graduation from normal kindergarten training school.
Do			Association	West End Reading Room Association.	1	30	180	20		1	270		Two years' approved kindergarten training school.

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Do			Free	Howard School Kindergarten	1	[3] 40	200	31		1	350		[1]
Do			....do	Rockford Kindergarten	1	30	200	20		1	350		[1]
Do			Private	Miss Alice Seller's School	1	20	92	12	[3] 10.00	1			
DISTRICT OF COLUMBIA.													
Washington [5]	331,069	14,235	Free	Kemper Boocock Memorial	1	40	179	30		2	200	200	No fixed rule.
Do			Settlement	Friendly House Association	1	30	110	18		2	[1]		[1]
Do			Association	Mount Vernon Seminary Society.	1	55	170	35		2	520	230	Graduation from normal school.
Do			Settlement	Noel House	1	37	175	12		[6] 1	245		Kindergarten training.
Do			Private	Potomac Private School	1	24	149	15	7.00	2			
Do			....do	St. Margaret's School	1	20	114	15	7.00	1			
FLORIDA.													
De Land	2,812	120	Private	Miss Fuqua's Kindergarten	1	30	150	[3] 20	4.00	1			
Jacksonville	57,699	2,481	Free	Mothers' Clubs, and Mrs. W. W. Cummer.	5	352	160	71		14	480	400	Graduation from kindergarten training school.
Do			Private	Riverside Kindergarten	1	42	160	28	4.00	2			
Do			....do	Miss Livingston's Kindergarten.	1	60	160	45	4.00	2			
Do			Mission	Woman's Home Missionary Society of Methodist-Episcopal Church.	1	16	156	[3] 12		1	320		Special kindergarten training.
Sanford	3,570	153	Private	The Sanford Kindergarten	1	21	159	13	4.00	1			
GEORGIA.													
Aragon	700	30	Mill	Aragon Mills	[7] 1	60	133	24		1	500		
Atlanta	154,839	6,658	Association	Sheltering Arms	3	[2] 225	180	160		3	500	500	Graduation from approved kindergarten training school.
Do			Mission	All Saints Church	1	56	180	30		1	450	360	Two years' training in approved school.
Do			....do	Methodist Episcopal Church	1	56	180	30		1	450	360	Do.
Do			Private	Highland Avenue Kindergarten.	1	14	240	8	4.00	1			
Do			Association	Atlanta Free Kindergarten Association.	3	200	180	105		3	450	360	Two years' training in approved school.
Do			Free	The Jewish Alliance	1	44	180	25		2	360		
Do			Private	Miss Wilder's Kindergarten	[7] 1	30	158	15	4.00	2			
Do			Mill	Exposition Cotton Mills	[7] 1	65	200	31		2	[3] 600		
Augusta	41,040	1,764	Free	The Haines School Kindergarten.	1	56	[1]	42		2			

[*] Teachers are Sisters.
[1] No data.
[2] Estimated.
[3] Approximate.
[4] Lay teachers assist.
[5] Including all in the District.
[6] Also practice-students in kindergarten training school.
[7] Statistics for year ended June, 1913.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
GEORGIA—continued.													
Chattahoochee	(1)		Mill	Whitten Mills Co	[2]1	21	[3]200	9		1	$720		
Columbus	20,554	883	do	Bibb Manufacturing Co. and Perkins-Massey Hosiery Co.	[2]2	60	180	45		3	530		Graduation from kindergarten normal school.
Do			Association	Free Kindergarten Association.	2	65	160	55		3	280	$240	Two years in kindergarten training school.
Do			Mill	Eagle & Phoenix Mills	[2]2	75	180	[4]60		3	405		Graduation from kindergarten normal school.
Dalton	5,324	228	Free	Free Kindergarten	1	50	160	22		1	320		Course in kindergarten normal school.
Elberton	6,483	278	Private	Elberton Kindergarten	1	10	[3]160	8	$2.50	1			
Gainesville	5,925	254	do	Beulah Rucker's Institute	1	113	180	60	.50	2			
Jewell	500	21	Mill	Bowen Jewell Co	[2]1	60	100	55		2	[3]520	[3]320	
La Grange	5,587	240	Settlement	Mill owners, Protestant Episcopal Church.	1	82	200	[4]60		1	715		Graduation from high school; two years in kindergarten training.
Lindale	2,500	107	Mill	Massachusetts Mills in Georgia.	1	58	160	32		2	675		
Macon	40,665	1,748	Association	Macon Free Kindergarten Association.	2	60	165	46		4	240	120	Two years' course.
Rome	12,099	520	Private	Miss Mary Veal's Kindergarten.	1	25	200	20	3.00	2			
Sandersville	2,641	113	Association [5]	Kindergarten Association	1	26	178	18		1	405		
Savannah	65,064	2,797	do	Savannah Association of Jewish Women.	1	30	156	24		1	[3]360		
Do			do	Kate Baldwin Free Kindergarten Association.	3	150	170	135		6	720	240	Graduation from high school; graduation from approved kindergarten training school.
Do			Private	The Savannah Kindergarten	1	[4]35	101	[4]25	6.00	2			
West Point	1,(illegible)	81	Mill	West Point Manufacturing Co.	[2]1	48	186	28		1	405		

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IDAHO.												
Boise	17,358	740	Private	St. Margaret's School	1	40	180	30	3.50	1		
Fort Hall	(1)		Indian school	Federal Government	1	28	200	21		1	600	Civil service examination.
Twin Falls	5,258	225	Private	Presbyterian Church	1	25	80	18	5.00	1		
ILLINOIS.												
Alton	17,528	753	Mission	Cherry Street Baptist Church	1	57	165	35		2	[3] 450	[3] 270
Cairo	14,548	625	Private	Mrs. Strang's Kindergarten	1	14	140	10	4.00	1		
Champaign	12,421	534	do	West Side Park Kindergarten	1	24	170	18	3.00	1		
Chicago	2,185,283	93,967	Mission	Armour Institute	1	70	[2] 180	50		3	(1)	(1)
Do			Association	Bethlehem Day Nursery	1	49	192	15		1	180	
Do			do	Chicago City Mission Society	3	[3] 253	291	[3] 168		4	(1)	(1)
Do				Chicago Ethical Culture Society	1	55	185	30		1	(1)	(1)
Do			Private	Chicago Latin School	1	28	165	16	10.00	1		
Do			Mission	Chicago Hebrew Institute	1	212	[3] 250	60		4		
Do			Private	Christ Church Kindergarten	1	50	160	25	5.00	2		
Do			Association	Chicago Home for Friendless	1	141	187	16		1	400	
Do			do	Children's Memorial Hospital	2	[4] 95	313	[4] 45		2	660	540
Do			Mission	Central Church	2	126	200	100		2	650	600
Do			Private	Chicago Beach Hotel Kindergarten	1	29	154	15	5.00	1		
Do			Orphanage	Chicago Orphan Asylum	1	40	180	30		1	500	
Do			Settlement	Chicago Commons	1	120	200	50		1	650	
Do			Free	Doremus Kindergarten	1	[4] 60	192	37		2	500	250
Do			Settlement	Emerson Settlement House	1	40	180	27		1	500	
Do			do	Eli Bates House	1	63	134	44		1	540	
Do			do	Fellowship House Settlement	1	40	224	25		1	500	
Do			Association	First Presbyterian Kindergarten Association	1	40	190	30		1	750	
Do			Private	Francis W. Parker	1	30	177	15	8.33	3		
Do			do	Grand Boulevard Hall Kindergarten	1	55	185	26	5.00	3		

Boise												Civil service examination.
Fort Hall												
Twin Falls												
Alton												
Cairo												
Champaign												
Chicago												Two years' kindergarten training.
Do												Do.
Do												
Do												Graduation from training school.
Do												
Do												
Do												
Do												Two years' kindergarten training.
Do												Do.
Do												Two years' approved kindergarten training.
Do												
Do												Kindergarten training.
Do												Graduation from high school; 2 years' kindergarten training.
Do												Two years' kindergarten training.
Do												Graduation from approved kindergarten training school.
Do												Special kindergarten training.
Do												Two years' kindergarten training.
Do												Graduation from approved kindergarten training school; good character.
Do												
Do												

[1] No data.
[2] Statistics for year ended June, 1913.
[3] Approximate.
[4] Estimated.
[5] Supported partly by association and partly by board of education.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ILLINOIS continued.													
Chicago			Private	Gladstone Hotel Kindergarten.	1	100	195	25	[1] $5.00	1			
Do			do	Hyde Park Presbyterian Church.	1	85	176	30	[1] 1.00	1			
Do			Association	Home for Jewish Friendless	1	35	190	30		2	$360		Graduation from kindergarten training school.
Do			Mission	Hyde Park Baptist	1	112	230	34		1	750		Affiliated with kindergarten training school.
Do			do	Italian Methodist Episcopal Kindergarten.	1	100	180	55		1	450		
Do			do	Immanuel Presbyterian Church.	1	90	200	60		[2] 1	585		Graduation from approved kindergarten training school.
Do			Association	Jewish Training School	1	151	186	106		2	760	$650	Do.
Do			Mission	Jefferson Park Presbyterian Church.	1	58	176	25		1		500	Graduation from high school; 2 years in training school.
Do			Private	Kenwood Institute and Loring School.	1	26	155	14	7.50	1			
Do			do	Lake View Institute Kindergarten.	1	13	200	10	5.00	1			
Do			do	Miss Lovett's Kindergarten	1	27	166	20	6.00	2			
Do			Association	Mary Crane Nursery	1	[3] 35	180	20		1	400		Graduation from approved kindergarten training school.
Do			do	Margaret Etter Crèche	1	65	203	21		1	660	660	Three years' kindergarten training.
Do			Mission	Mennonite Home Mission	1	50	186	25		1	360		Graduation from high school; graduation from kindergarten training school.

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Do			Settlement	Northwestern University Settlement.	1	45	177	33		1	720	540	Graduation from approved training school.
Do			Mission	Olivet Institute	1	90	270	55		1	495		Graduation from kindergarten college.
Do			Private	Stickney School	1	59	190	38	7.50	[4] 1			
Do			do	Sheridan Park Kindergarten	1	105	190	40	5.00	1			
Do			Association	St. Luke's Hospital Kindergarten.	1	[3] 45	313	20		1	[1] 720		Graduation from approved kindergarten training school.
Do			Mission	St. Alban's Kindergarten	1	22	185	10		1	600	280	Graduation from kindergarten college.
Do			Private	The Faulkner School	1	52	165	38	[3] 8.00	2			
Do			do	University Elementary School	1	35	170	17	[1] 2.00	2			
Do			Settlement	University of Chicago Settlement Kindergarten.	1	45	175	35		1	700	700	Graduation from approved kindergarten training school.
Do			Private	University School for Girls	1	20	157	12	10.00	2			
Do			do	Washington Park Kindergarten.	1	66	192	[1] 30	4.00	1			
Do			Mission	W. Presbyterian S. and Ch. Extension Board.	1	105	190	63		1	750	500	Three years' kindergarten training.
Evanston	24,978	1,074	Private	Evanston Private Kindergarten.	1	52	161	20	6.00	3			
Do			Mission	First Presbyterian Church	1	50	170	30		1	360		Graduation from high school; 2 years' kindergarten training.
Galesburg	22,089	949	Association	Galesburg Free Kindergarten Association.	1	56	180	30		1	[1] 500	[1] 300	Two years' kindergarten training experience.
Do			Private	Bateman Kindergarten	1	55	175	44	[5]	1			
Geneseo	3,199	137	do	Miss Luther's Kindergarten	1	30	180	25	[6]	1			
Highland Park	4,209	180	do	Highland Park Kindergarten	1	35	165	25	6.00	2			
Jacksonville	15,326	659	Association	Jacksonville Free Board	1	65	[1] 180	35		1	585		Three years in kindergarten training school.
Joliet	34,670	1,490	Private	Miss Alma Fleischer	1	30	187	20	5.00	2			
Kankakee	13,986	601	do	Froebel Kindergarten	1	33	185	11	2.00	1			
Lincoln	10,892	468	do	Lincoln Private Kindergarten.	1	27	180	15	4.00	[3] 1			
Normal	4,024	172	Orphanage	Illinois Soldiers' Orphans' Home.	1	25	250	25		1	600		Civil service examination.
Oak Park	19,444	836	Private	Third Congregational Church	1	56	178	35	2.00	1			
Do			Association	Oak Park Kindergarten Association.	2	92	[1] 195	55	[5]	3	600	150	
Do			Private	Emerson School Kindergarten	1	30	184	20	3.00	2			
Ottawa	9,535	409	do	Miss Caton's Kindergarten	1	22	154	15	2.50	1			
Quincy	35,578	1,573	Parochial	St. Francis' School	1	63	180	42	[5]	1			

[1] Approximate.
[2] Also practice-students in kindergarten training school.
[3] Estimated.
[4] Practice-students in kindergarten training school.
[5] Small weekly fee.
[6] No data.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ILLINOIS—continued.													
Quincy	.....	.....	Parochial	St. John's Parish	1	45	196	36	.....	*1	.....	.....	Special training; music.
Riverside	1,702	73	Association	Kindergarten Extension Association.	3	90	230	81	.....	10	$1,000	$400	Kindergarten training school graduation.[1]
INDIANA.													
Anderson	22,476	966	Free	Anderson Free Kindergarten	[2]2	234	177	45	.....	2	585	585	Graduation from standard college kindergarten work.
Goshen	8,514	365	Private	Goshen Kindergarten	1	25	240	20	$3.00	1	.....	.....	
Hartford City	6,187	265	do	Seventh Day Adventist Church School.	1	[3]23	160	18	.....	1	.....	.....	
Indianapolis	233,650	10,046	do	Miss Hinson's Kindergarten	1	41	190	20	[3]4.00	1	.....	.....	
Do	.....	.....	do	Jackson Kindergarten and Model School.	1	208	187	74	1.00	2	.....	.....	
Do	.....	.....	do	The Woodruff Kindergarten	1	20	[3]160	15	4.00	2	.....	.....	
Do	.....	.....	Association	Indianapolis Free Kindergarten and Children's Aid Society.	32	3,200	160	1,200	.....	32	750	(4)	
Jeffersonville	10,412	447	Private	Miss Loomis's Kindergarten	1	18	170	17	2.00	1	.....	.....	
Lafayette	20,081	863	Parochial	St. Lawrence	1	57	184	47	.....	*1	[5]175	.....	State requirement and kindergarten training.
Do	.....	.....	Free	Lafayette Free Kindergarten and Industrial School.	3	175	178	25	.....	2	585	540	High school graduation; kindergarten, normal and experience.
Muncie	24,005	1,032	Association	Muncie Free Kindergarten Association.	[3]3	190	180	145	.....	10	810	72	Graduation from high school; special kindergarten experience.

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IOWA.													
Burlington	24,324	1,045	Private	Miss Kelley's Kindergarten	1	10	182	6	4.00	1			
Clarinda	3,832	164	do	Miss Iner Welch	1	[2]25	(6)	[2]18	4.00	1			
Davenport	43,028	1,850	Settlement	West Side Settlement	1	60	200	35		3	500	120	High school graduate; kindergarten training.
Do			Association	Davenport Friendly Society	1	22	198	[2]20		1	500		Graduation from approved training school.
Dubuque	38,494	1,655	Parochial	St. Patrick's Parish	2	100	200	90		*2	250		Special training at Mother House.
Keokuk	14,008	602	Private	Miss Bancroft's Kindergarten	1	25	184	[2]20	[2]3.00	1			
Do			Free	Free Kindergarten	1	[2]72	190	24		1	(6)	(6)	Two years' kindergarten training.
Mason City	11,230	482	Private	Mrs. Willson's Kindergarten	1	40	159	20	2.00	1			
Oelwein	6,028	258	Parochial	Sacred Heart Parish	1	46	190	38		*1	(7)		(6)
KANSAS.													
Emporia	9,058	389	Normal	Kindergarten of Kansas State Normal.	1	75	174	28	.40	1			
Eureka	2,333	100	do	Mrs. Moonlight's Kindergarten.	1	14	100	12	2.00	1			
Kansas City	83,331	3,583	Parochial	St. Thomas Parish	1	96	200	75		*1	(7)		State certificate and Catholic school board.
Lawrence	12,374	532	Private	Froebel Kindergarten	1	30	200	18	6.00	1			
Leavenworth	19,363	832	do	Miss Farrell's Kindergarten	1	15	180	12	4.00	1			
Liberal	1,716	73	Mission	Liberal Free Kindergarten	1	15	30	4	(8)	1			None.
Manhattan	5,722	245	Private	Anna Fairman's Kindergarten	1	22	118	15	4.00	1			
Osborne	1,566	67	do	The Osborne Kindergarten	[9]1	17	138	17	[2]1.50	2			
Ottawa	7,650	328	do	Seventh Day Adventist Church.	1	30	160	[2]28	1.50	1			
Topeka	43,684	1,878	do	Kindergarten of the College of the Sisters of Bethany.	1	[2]43	168	[2]27	3.00	2			
Wichita	52,450	2,255	Association	Associated Charities	1	27	311	10		1	[2]385		University course.
KENTUCKY.													
Ashland	8,688	373	Private	Miss Martin's Kindergarten	1	24	170	15	3.00	1			
Bowling Green	9,173	394	Normal	Western Kentucky State Normal.	1	24	20	16		2			
Georgetown	4,533	194	Private	Georgetown Kindergarten	1	18	180	10	2.00	1			
Louisville	223,928	9,628	do	Kentucky Home School for Girls.	1	25	164	13	(6)	1			Graduation from kindergarten training school.

* Teachers are Sisters.
[1] Experience also required.
[2] Supported partly by association and partly by board of education.
[3] Approximate.
[4] Practice students in kindergarten training school.
[5] Room, board, laundry in addition to salary.
[6] No data.
[7] Services given.
[8] Small weekly fee.
[9] Taken over by public school 1912–13.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
KENTUCKY—contd.													
Louisville			Private	Highland Kindergarten	1	24	158	15	$5.00	1			
Do			Association	Masons of Kentucky	1	45	250	32		1	$600		Graduation from kindergarten training school.
Morehead	1,105	45	Private	(1)	1	40	170	25	(1)	1			
Paducah	22,760	978	Mission	Grace Episcopal Church	1	24	160	15		1	[2]440		Graduation from approved school.
LOUISIANA.													
Baton Rouge	14,897	640	Private	Live Oak School	1	105	[2]200	40	.50	1			
New Orleans	339,075	14,580	Association	New Orleans Free Kindergarten Association.	3	218	[2]189	84		6	[2]350	[2]$250	Normal kindergarten course.
Do			Settlement	Kingsley House	1	64	160	33		1			
Do			Private	Kindergarten department Newman Manual Training School.	1	25	165	[2]23	3.25	2	800	450	
Shreveport	28,015	1,204	do	Tomkies Kindergarten	1	35	231	34	4.00	1			
MAINE.													
Bangor	24,803	1,066	Private	The Somerset Private Kindergarten.	1	22	174	13	[2]6.00	2			
Bar Harbor	2,500	107	do	Bar Harbor Kindergarten	1	79	68	31	1.00	2			
Do			Association	Bar Harbor Kindergarten Association.	1	68	195	31		2	888	[2]555	Graduation from kindergarten training school.
Calais	6,116	262	Private	Miss Hind's School	1	16	176	14	3.00	1			
Lewiston	26,247	1,128	do	"The Hawthorne"	1	12	168	10	6.00	1			
North East Harbor	350	15	do	North East Harbor Kindergarten.	1	25	150	20	1.00	2			
Rockland	8,174	351	do	Fiske Manning	1	25	180	12	2.00	2			

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MARYLAND.													
Baltimore	558,485	24,014	**Private**	Calvert School Pre-school Class.	1	30	160	24	[3] 7.50	2			
Do			do	Kindergarten department of Park School.	1	25	160	18	6.25	2			
Do			do	Friends' School	1	[1] 24	147	[3] 20	6.25	2			
Do			Mission	Mt. Vernon Place Methodist Church.	1	125	158	70		3	550	300	Two years training school.
Do			do	Mount Tabor Bohemian Methodist Episcopal Church Institute.	1	93	185	[3] 84		1	(1)	(1)	Graduation from kindergarten training school.
Do			do	St. Paul's Chapel	1	92	170	60		2	150	100	Do.
Do			Settlement	Lawrence House Settlement	1	57	168	45		2	500	300	Do.
Do			Mission	Grace Church Free Kindergarten.	1	66	200	[3] 50		2	(1)	(1)	Do.
Do			do	The Bishop Paret Memorial	1	120	166	64		3	300	150	Two years theoretical training.
Do			do	Grace and St. Peters Protestant Episcopal Church.	1	67	156	40		2	350	150	Two years kindergarten training.
Do			Association	Kindergarten Guild, Roland Park.	1	63	[3] 180	38		1	304	40	Graduation from kindergarten school.
Cumberland	21,839	939	**Private**	Craigie Hall Private School	1	48	182		1.25	1			
Frederick	10,411	447	**Free**	Frederick Free Kindergarten	1	78	160	42		2	200	80	(1)
Hagerstown	16,507	709	**Mission**	Day Nursery Kindergarten	1	18	160	[3] 15		1	(1)	[3] 340	(1)
Port Deposit	1,394	59	**Free**	Jacob Tome Institute Kindergarten.	1	30	164	20		2	(1)		(1)
MASSACHUSETTS.													
Beverly	18,650	801	**Private**	Miss Studley's Kindergarten	1	21	170	[3] 16	2.50	1			
Boston	670,585	28,835	**Association**	Hale House Association	1	35	184	25		1	600	400	Graduation from kindergarten training school.
Do			Settlement	Jamaica Plain Neighborhood House.	1	22	138	10		1	[4]		
Do			Free	Morgan Memorial	1	24	160	11		1	[4]		
Do			do	North Bennet Street Day Nursery.	1	[3] 35	165	28		1	320		Graduation from kindergarten training school.
Do			Mission	Hope Chapel Kindergarten	1	40	181	24		1	540		Graduation from high school; graduation from kindergarten training school.
Do			Private	Miss Woodward's School	1	27	142	16	9.00	2			
Do			Settlement	Elizabeth Peabody House Settlement.	1	68	[3] 180	55		2	800	300	High school and normal school training.
Do			do	Settlement Kindergartens	2	159	165	[3] 120		4	400		(1)
Do			Private	Mrs. Leatherbee's Kindergarten.	1	9	148	6	12.50	2			

[1] No data. [2] Approximate. [3] Estimated. [4] Practice students in kindergarten training school.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
MASSACHUSETTS—contd.													
Brockton	56,878	2,445	Association	Brockton Day Nursery Association.	1	30	50	20	.....	1	$100	.....	Graduate teacher.
Do	.....	.....	Private	Miss Cooper's Kindergarten	1	20	209	[1] 18	$6.00	2	.....	.....	
Do	.....	.....	Parochial	Sacred Heart	1	80	186	60	.....	*2	(2)	.....	
Cambridge	104,839	4,508	Private	Miss Rogers's Kindergarten	1	18	171	14	8.75	1	.....	.....	
Chestnut Hill	.....	.....	....do	Chestnut Hill Kindergarten	1	12	162	9	7.33	2	.....	.....	
Danvers	9,407	404	....do	Mrs. Weston's Kindergarten	1	14	172	10	4.00	1	.....	.....	
Fall River	119,295	5,129	....do	Miss Brown's Kindergarten	1	18	173	12	6.00	1	.....	.....	
Fitchburg	37,826	1,626	Normal	Edgerly School Kindergarten	1	45	195	35	.....	1	600	.....	(2)
Jamaica Plain	.....	.....	Private	Kindergarten for Blind	1	140	221	125	3.00	1	.....	.....	
Leominster	17,580	755	Parochial	St. Cecilia's Parish	1	107	180	62	.....	*1	90	.....	Same as primary grades.
Lexington	4,918	211	Private	Miss Richardson's Kindergarten.	1	12	200	10	5.00	1	.....	.....	
Lynn	89,336	3,841	....do	Miss Alice L. Cate Kindergarten.	1	18	172	9	[1] 5.50	1	.....	.....	
Malden	44,404	1,909	....do	Miss Grace Fifield's Kindergarten.	1	12	187	10	6.00	1	.....	.....	
Melrose	15,715	675	....do	Miss Pray's Kindergarten	1	12	158	10	5.00	1	.....	.....	
Newton Center	3,500	150	....do	Miss Ellis's Kindergarten	1	8	155	4	[1] 7.50	1	.....	.....	
Plymouth	12,141	522	....do	Miss Thurber's Kindergarten	1	12	165	9	4.00	1	.....	.....	
Do	.....	.....	Mill	Plymouth Cordage Co	1	78	[4] 180	45	.....	2	(3)	.....	Normal training.
Quincy	32,642	1,403	Association	Commission of 15 Wollaston ladies.	1	48	180	24	.....	1	500	$500	Graduation from kindergarten training school and experience.
Somerville	77,236	3,321	Private	Spring Hill Private Kindergarten.	1	24	176	17	4.00	.....	.....	.....	
Spencer	6,740	289	Parochial	St. Mary's Parish	1	95	200	66	.....	*1	200	.....	(3)
Springfield	62,059	2,668	Private	Miss Augusta Chapin's Kindergarten.	1	16	[1] 160	[1] 14	[1] 8.00	1	.....	.....	
Wakefield	11,404	490	....do	Miss Campbell's Kindergarten	1	9	146	6	4.00	1	.....	.....	

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Waltham	27,834	1,196	....do	Memorial Kindergarten	1	10	180	9	4.00	1	.....	.....	
Wellesley	5,413	232	Mission	Wellesley Free Kindergarten	1	37	[4]180	28	.....	2	(3)	.....	(3)
West Medford	3,000	129	....do	Miss Bearce's Kindergarten	1	12	246	10	4.00	1	.....	.....	
West Newton	.....	.....	....do	Miss Sear's Kindergarten	1	17	145	10	12.00	1	.....	.....	
Winter Hill	.....	.....	Private	Miss Alice F. Lyons	1	19	103	15	4.00	1	.....	.....	
Whitman	7,292	313	....do	Whitman Private Kindergarten.	1	18	113	14	4.00	1	.....	.....	
Worcester	145,986	6,307	....do	The Bancroft School	1	12	170	9	[4]6.25	1	.....	.....	
Do	.....	.....	Parochial	St. Joseph's Parish	1	92	[1]200	[1]85	.....	*2	.....	.....	
MICHIGAN.													
Bay City	45,166	1,942	Parochial	St. Mary's Parish	1	93	180	85	.....	1	200	200	Normal graduation.
Do	.....	.....	....do	St. Stainislaus Parish	2	190	250	180	.....	2	250	200	That of Felician Sisters.
Benton Harbor	9,185	394	Private	Benton Harbor College Kindergarten.	1	30	244	25	2.00	1	.....	.....	
Big Rapids	4,519	193	....do	Ferris Institute Private Kindergarten.	1	35	186	18	1.00	1	.....	.....	
Detroit	465,766	20,027	Mission	Hungarian Reformed Church	1	82	259	63	.....	2	250	125	
Do	.....	.....	Private	Liggett School Kindergarten	1	32	165	22	20.00	3	.....	.....	
Do	.....	.....	Parochial	Most Holy Redeemer	1	[1]71	199	22	.....	1	200	200	
Grand Rapids	112,571	4,840	Private	Eastman School	1	15	197	10	5.00	1	.....	.....	
Holland	10,490	451	Mission	Christian Primary School	1	49	200	47	.....	1	400	.....	Graduation from kindergarten training school.
Jackson	31,433	1,351	Association	Associated Charities	1	185	191	56	.....	2	450	350	Graduation from approved kindergarten training school.
Kalamazoo	39,437	1,695	Normal	Western State Normal	1	52	166	35	.....	2	480	.....	
Laurium	8,537	366	Parochial	Sacred Heart Parish	1	75	200	70	.....	*2	250	.....	Two years' training.
Saginaw	50,510	2,171	Association	Saginaw Free Kindergarten Association.	2	100	250	70	.....	5	600	400	Graduation from approved kindergarten training school.
Do	.....	.....	Private	Germania Kindergarten	1	86	186	42	1.00	2	.....	.....	
Traverse City	12,115	520	Parochial	Immaculate Conception	1	21	195	19	.....	*1	(3)	.....	
MINNESOTA.													
Crookston	7,559	324	Parochial	St. Anne Parish	1	48	180	31	.....	*2	.....	.....	Kindergarten diploma.
Little Falls	6,078	261	Private	Miss Rhodes' Kindergarten	1	25	168	20	4.00	1	.....	.....	
Mankato	10,365	445	Normal	State Normal School Kindergarten.	1	66	166	32	.....	2	1,200	670	
Minneapolis	301,408	12,096	Mission	Plymouth Congregational Church.	2	150	175	105	.....	2	700	500	Graduation from high school; graduation from kindergarten training school.
Do	.....	.....	....do	Westminster Presbyterian Church.	3	312	185	170	.....	7	617	100	Graduation from high school; graduation from kindergarten training school.

* Teachers are Sisters. [1] Approximate. [2] Services given. [3] No data. [4] Estimated.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
MINNESOTA—continued.													
Minneapolis			Mission	St. Mark's Church	1	105	184	37		1	$500	$500	Graduation from high school; graduation from normal kindergartentrainingschool.
Winona	18,583	799	Normal	Winona's State Normal School.	1	60	180	40	$0.33	2	1,500	900	
MISSISSIPPI.													
Hattiesburg	11,733	504	Private	Hattiesburg Private Kindergarten.	1	[1] 22	180	[1] 22	3.00	1			
Jackson	21,262	914	....do	Miss Bryan's Kindergarten	1	35	150	15	2.50	1			
Laurel	8,465	363	....do	Laurel Private Kindergarten	1	[1] 22	180	[1] 20	3.00	1			
Do			Mill	Laurel Cotton Mills	[2] 1	50	220	38		2	525	425	
Meridian	23,285	1,001	Private	Meridian Private Kindergartens.	2	[1] 44	180	[1] 40	3.00	2			
Do			Parochial	St. Patrick's Church	1	39	203	43		*2	(4)	(4)	Special training. Kindergarten and primary certificate.
Do			....do	St. Joseph's Catholic	1	46	193	30		*1	(4)	(4)	
Starkville	2,698	115	Mill	John M. Stone Cotton Mills	[2] 1	50	180	30		2	450		
Tupelo	3,881	166	....do	Tupelo Cotton Mills	[2] 1	24	160	18		1	600		
Vicksburg	20,814	895	Parochial	St. Mary's Catholic Church	1	84	170	40		*1	(4)	(4)	Special training.
Do			Private	Vicksburg Private Kindergarten.	1	[1] 22	180	[1] 20	3.00	1			
Yazoo City	6,796	291	Mill	Yazoo Yarn Mill	[2] 1	29	180	20		1	300		
MISSOURI.													
Carthage	9,483	407	Private	Carthage Kindergarten	1	[1] 45	180	[1] 30	3.00	2			
Eldon	1,999	85	....do	Miss Haswell's Kindergarten	1	16	120	14	2.00	1			
Ferguson	1,658	70	Association	Ferguson Free Kindergarten	1	46	188	22		2	450		
Joplin	32,073	1,379	Private	Library Kindergarten	1	20	210	6	4.00	1			

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Do			do	North Heights Kindergarten	1	21	190	15	5.00	1			
Kansas City	248,381	10,680	Parochial	Our Lady of Perpetual Help	[3] 2	[4] 30	190	20		*[3] 2	[1] 250		Two years' training.
Do			Mission	Central Chapel and Settlement House.	1	68	180	27		1	300		
Do			do	Grace Episcopal Church Kindergarten.	1	77	177	35		3	[1] 500	[1] 235	Two years in kindergarten training school.
Do			do	Jewish Educational Institute	1	45	240	30		2	360	120	Graduation from kindergarten training school.
Do			do	Kindergarten Finance Club of Institute Church.	1	52	230	21		1	300		Graduation from Kansas City Kindergarten Training School.
Do			do	Swope Center	1	110	230	40		1	385	385	Two years' school and practice work.
Do			Private	Elementary School	1	30	248	10	5.00	1			
Kirksville	6,347	272	Normal	First District Normal School Kindergarten.	1	75	240	40		1			
Lebanon	2,430	104	Private	Miss Warner's Kindergarten	1	8	180	5	4.00	1			
Lexington	5,242	225	Mission	Lexington Kindergarten	1	16	180	9		2	270		High-school graduation and special training. m
Maryville	4,702	204	Normal	State Normal	1	30	[1] 180	15		1	900		High-school graduation and kindergarten training.
St. Louis	687,029	29,542	Mission	Bishop Robertson Hall	1	13	185	10		1	270		
Do			do	Church of the Holy Communion.	1	43	177	25		2	270	225	Graduation from training school.
St. Louis			Parochial	Parochial School System	5	358	190	300		*5	250	250	Required normal course.
Do			Mission	Episcopal Orphans' Home Board.	1	27	220	19		1	250	250	Kindergarten course.
Do			do	Grace Church, Holy Cross House.	1	60	180	40		2	180		Normal-school course.
Do			do	Jewish Educational Alliance	2	180	300	[1] 80		4	330	220	St. Louis kindergarten, normal.
Do			do	Kingdom House Church Settlement.	1	60	160	35		2	240	200	Two years' training.
Do			Private	Miss Pulliam's kindergarten	1	36	164	[1] 15	5.00	2			
Warrensburg	4,689	201	Normal	State normal school, kindergarten.	1	60	240	28	.25	1	960		
MONTANA.													
Great Falls	13,948	599	Parochial	Pro-Cathedral	1	15	190	13		1	(4)	(4)	Kindergarten training.
NEBRASKA.													
Fremont	8,718	374	Private	Fremont College	1	35	175	26		2			
Kearney	6,202	266	Normal	State normal school	1	20	180	18		2			
Omaha	124,096	5,336	Private	Holyoke-Dox	1	25	180	18	6.50	2			Graduation from kindergarten college or normal school.

*Teachers are Sisters. [1] Approximate. [3] Statistics for year ended June, 1913. [3] Estimated. [4] Services given.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
NEBRASKA—continued.													
Peru	950	40	Normal	State Normal School	1	36	180	25	.....	1	$600	.....	
Wayne	2,140	92	.....do	.....do	1	20	180	[1]19	.....	1	.....	.....	
NEVADA.													
Nixon	.....	.....	Indian	Federal Government	1	[1]35	[2]180	28	.....	1	600	.....	
NEW HAMPSHIRE.													
Berlin Mills	1,000	43	Free	W. W. Brown Memorial	1	75	180	56	.....	3	.....	.....	
Concord	21,497	924	Private	Miss Bailey's Kindergarten	1	[2]25	(3)	[2]18	.....	1	.....	.....	
Franklin	6,132	264	Free	N. H. Orphans' Home	1	32	240	30	.....	1	.....	.....	
Plymouth	2,200	94	Normal	State Normal School	1	[2]20	180	[2]18	.....	1	600	.....	
NEW JERSEY.													
Atlantic City	46,150	1,984	Private	Friends Kindergarten	1	24	190	20	$4.00	1	.....	.....	
Boonton	4,930	212	Mission	St. John's Episcopal	1	9	220	8	.....	1	595	.....	High-school graduation; 2 years' kindergarten training.
Bordentown	4,250	183	Parochial	St. Mary's Roman Catholic	1	62	190	40	.....	*1	250	.....	Certificate from recognized system.
Bridgeton	14,209	610	Private	Lakewood Select School	1	24	179	20	2.00	1	.....	.....	
Camden	94,538	4,065	.....do	Camden Friends Kindergarten.	1	13	157	9	4.00	1	.....	.....	
Collingswood	4,795	205	.....do	Mrs. Oliver's Kindergarten	1	10	175	9	3.00	1	.....	.....	
East Orange	34,371	1,478	.....do	Miss Peet's Kindergarten	1	[1]17	158	15	6.25	1	.....	.....	
Do.	.....	.....	Parochial	Our Lady Help of Christians	1	40	190	30	.....	1	250	.....	One year's training.
Elizabeth	73,409	3,156	Settlement	Visiting Nurses Association	1	25	[1]180	18	.....	1	(4)	(4)	Two years' training.
Do.	.....	.....	Mission	All Souls' Unitarian Church	1	[1]14	160	[1]10	.....	1	240	.....	Normal-school diploma

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Do			do	Trinity Episcopal Church	1	37	156	21		1	320		High-school graduation; kindergarten-training school graduation.
Haddonfield	4,142	178	Private	Bancroft Training School	1	28	[1] 320	[1] 25		1			
Hoboken	70,324	3,024	Parochial	St. Peter and Paul Parish	1	28	230	25		1	(4)		None.
Do			do	St. Joseph's Parish	1	50	180	40		*1	225		Kindergarten course.
Do			Private	Hoboken Academy	1	16	177	14	[1] 85	1			
Jersey City	267,779	11,514	do	Bergen School for Girls	1	14	155	10	3.33	1			
Do			do	The Crescent Hall School	1	20	152	18	[1] 2.50	2			
Do			do	German-American School	1	27	210	25	2.00	1			
Long Branch	13,298	572	Parochial	Star of the Sea Academy	1	25	190	[1] 23		*1	(4)		High school graduation; normal course.
Madison	4,658	199	do	Madison Academy	1	15	180	10	7.00	1			
Montclair	21,550	927	Private	Unity Kindergarten	1	35	154	27	[1] 8.00	3			
Moorestown	3,000	129	do	Friends High School and Kindergarten.	1	15	182	10	3.50	1			
Morristown	12,507	537	Association	The Morristown Free Kindergarten Association.	1	75	182	29		3	700	$240	Graduation from kindergarten training school; normal training.
Do			Private	Miss Christine D. Stuphen's	1	[2] 20	[1] 165	[2] 16	7.00	1			
New Brunswick	23,388	1,006	Parochial	St. Mary's Home	1	50	159	50		1	(4)	(4)	Qualifications primary teachers.
Do			do	St. Ladislaus, Hungarian	1	30	255	[1] 28		2	250		Graduation from St. Peter's Roman Catholic school.
Do			Association	Dorcas Society and Children's Day Nursery.	1	34	120	15		1	100		Practical knowledge of kindergarten.
Newark	347,469	14,940	Mission	West Newark Kindergarten	1	40	300	36		1	576	420	(5)
New Durham	1,500	64	Parochial	St. Bridget's Parish	1	29	101	22		*1	250		(5)
Orange	29,630	1,274	Private	Miss Beard's Kindergarten	1	9	190	7	8.75	1			
Do			Mission	Day Nursery	1	16	168	10	(3)	(5)			
Do			Private	Dearborn Morgan School	1	23	170	18	[1] 9.00	2			
Do			Mission	Hurlbut Street Mission	1	75	190	30		1	400		
Do			Parochial	Our Lady of Mount Carmel	2	143	(3)	[2] 108		*1	350	250	(3)
Passaic	54,779	2,355	Private	Passaic Collegiate School, Kindergarten.	1	13	180	[2] 9	7.50	1			
Paterson	125,600	5,401	do	Miss Stile's School	1	22	175	18	4.50	1			
Do			Normal	Normal School Kindergarten	1	82	195	38		1			
Do			Association	North Fourth Street Christian School.	1	23	100	20		2	200		Not specified as yet.
Plainfield	26,667	1,147	Private	Department of the Hartridge School.	1	21	158	15	[1] 7.50	1			
Rutherford	7,045	303	do	Miss Fessenden's Kindergarten.	1	16	160	12	5.00	2			
Summit	7,500	322	do	Miss Mueller's Outdoor School	1	16	156	12	10.00	1			
Trenton	96,815	4,163	Normal	State Normal	1	35	190	20	2.80	1			
Do			Mission	Bible Readers' Aid	1	30	160	18		1	160		No standard.

* Teachers are Sisters.
[1] Approximate.
[2] Estimated.
[3] No data.
[4] Services given.
[5] Practice-students in kindergarten training school.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
NEW MEXICO.													
Albuquerque	11,020	473	Indian	Federal Government	[1] 1	32	199	30	.....	1	$720	.....	Civil service examination.
Do	.....	.....	Private	Miss Philbrick's	[1] 1	31	178	14	$3.75	1	.....	.....	
Mescalero	.....	.....	Indian	Federal Government	[1] 1	22	280	21	.....	1	720	$600	Do.
Santa Fe	5,072	218	.....do	.....do	[1] 1	64	200	60	.....	1	720	.....	Kindergarten training.
NEW YORK.													
Albany	100,253	4,310	Parochial	Parochial School System	[1] 6	[2] 180	151	[2] 100	.....	* 6	(3)	.....	Normal or college training.
Buffalo	423,715	18,219	Private	St. Margaret's School Kindergarten.	1	5	240	5	5.00	1	.....	.....	
Do	.....	.....	.....do	Elmwood School Kindergarten.	1	18	165	14	6.25	2	.....	.....	
Do	.....	.....	.....do	Franklin School Kindergarten.	1	24	158	16	9.36	2	.....	.....	
Do	.....	.....	.....do	Park School Kindergarten	1	20	160	15	9.36	1	.....	.....	
Corning	13,730	589	.....do	Froebel Kindergarten	1	11	180	9	4.00	1	.....	.....	
Dobbs Ferry	3,455	148	.....do	Miss Trube's Kindergarten	1	20	180	16	7.00	2	.....	.....	
Do	.....	.....	Free	The McKinley Free Kindergarten.	1	52	180	43	.....	2	360	184	Graduation from approved kindergarten training school.
Dunkirk	17,221	740	Parochial	St. Mary's Parish	1	26	204	22	.....	* 1	250	.....	Two years' training.
Elmira	37,176	1,595	Association	Elmira Industrial School and Free Kindergarten Association.	3	100	200	[4] 80	.....	2	575	400	Two years' kindergarten training.
Do	.....	.....	Private	Elmira Church School	1	24	200	16	1.00	1	.....	.....	
Do	.....	.....	.....do	Misses Norton's Kindergarten	1	13	185	10	5.00	1	.....	.....	
Fredonia	5,285	227	Normal	State Normal School	1	61	185	36	.60	2	850	.....	
Geneseo	2,067	88	.....do	State Normal	1	36	190	24	.....	2	800	.....	College training or equivalent.
Gloversville	20,642	887	Private	Miss Smith's Kindergarten	1	21	196	13	4.00	1	.....	.....	
Hastings on Hudson	4,552	195	.....do	Miss Worden's Kindergarten	1	18	160	12	6.00	2	.....	.....	

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Do			Free	New York Orphanage Kindergarten.	1	13	200	12		1		
Herkimer	7,320	323	Mission	Folts Mission Institute Kindergarten.	[1] 1	16	146	9	.17	1		
Hudson	11,417	490	Parochial	St. Mary's Parish	1	78	196	65		[2] 1		
Kinderhook	808	29	Private	Kinderhook Kindergarten	1	12	180	[4] 10	[4] 2.00	1		
Kingston	25,908	1,113	do	Froebel Kindergarten	1	15	180	12	4.00	2		
Larchmont	1,958	84	do	Manor School	1	6	150	4	15.00	1		
Mamaroneck	5,699	244	Free	Mamaroneck Free Kindergarten.	1	96	178	42		2	618	450	Graduation from kindergarten training school.
Mount Vernon	30,919	1,329	Private	McVickar Kindergarten	1	38	230	34	[4] 4.00	2		
Do			do	Loomis Kindergarten	1	16	210	14	4.00	1		
New York City	4,766,883	204,975										
Brooklyn			Private	Adelphi Academy	1	[4] 35	175	25	7.00	2		
Do			do	Berkeley Institute	1	33	171	[3] 25	[4] 8.00	2		
Do			Association	Brooklyn Free Kindergarten Society.	20	2,136	191	717		32	750	650	Graduation from high school; graduation from approved kindergarten training school.[5]
Do			Private	Brooklyn Friends' School	1	33	163	[3] 25	11.00	2		
Do			Association	Brooklyn Heights Seminary Club.	1	25	170	[3] 20		1	400		Graduation from approved kindergarten training school.
Do			Private	Brooklyn Heights Seminary kindergarten.	1	15	160	10	12.00	1		
Do			Mission	Emmanuel Baptist Church	1	58	176	39		1	735		Do.
Do			do	Evangelical Lutheran Church of the Messiah.	1	30	155	24		1	320		Do.
Do			Private	Froebel Academy	1	23	164	[4] 17	6.00	2		
Do			do	Misses McCreary's School	1	30	176	[4] 25	[4] 4.50	1		
Do			do	Mrs. Perkins's School	1	18	167	13	4.00	2		
Do			do	Pratt Institute Kindergarten	1	24	164	13	8.00	2		
Do			Mission	St. Christopher Kindergarten	1	66	200	45		1	500	500	Normal-school training.
Do			do	Tompkins Avenue Congregational Church.	1	60	200	40		2	[4] 500	[4] 500	Kindergarten teacher's certificate.
Manhattan			Private	Alcuin Preparatory School	1	13	160	[4] 10	[4] 10.00	1		
Do			Association	American Female Guardian Society.	13	[4] 1,622	194	[4] 1,400		46	600	300	Graduation from kindergarten training school.
Do			Mission	Beth-el Sisterhood	1	[4] 75	205	51		2	420		Graduation from kindergarten normal school.
Do			Association	Brightside Kindergarten and Day Nursery.	1	[4] 250	[4] 265	[4] 195		5	[4] 600	[4] 420	Graduation from kindergarten training school.

[2] Teachers are Sisters.
[1] Statistics for year ended June, 1913.
[3] Estimated.
[5] Services given.
[4] Approximate.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
NEW YORK—continued.													
New York City—Con.													
Manhattan			Mission	Calvary Protestant Episcopal Kindergarten.	1	121	276	87		2	[1] $800		Graduation from approved kindergarten training school.
Do			do	Chapel of Intercession (Protestant Episcopal) Kindergarten.	1	100	184	25		1	[1] 300		Kindergarten normal training school.
Do			Private	Charlton School	1	10	175	5	[1] $16.00	2			
Do			do	Miss Chaires' Kindergarten	1	[1] 20	160	[1] 16	[1] 15.50	1			
Do			Association	Children's Aid Society	11	2,436	190	1,042		33	770	$480	Graduation from high school; 1 year's experience.
Do			Mission	Christ Church House	2	105	170	50		4	612	405	Two years' kindergarten training; one year's experience.
Do			Settlement	Clark Neighborhood House	3	225	200	190		8	375	125	Two years' approved kindergarten training.
Do			Mission	Convent of Sacred Heart	1	[1] 75	224	60		1	480	240	
Do			Private	De Lancy School	1	20	152	13	10.50	1			
Do			Settlement	East Side Kindergarten	1	72	174	[1] 68		2	960		Kindergarten training; social service.[2]
Do			Association	École Maternelle Française	1	100	300	65		1	600	360	Kindergarten training: French and English; piano.
Do			do	Emanuel Sisterhood	1	[3] 55	247	35		1	600		(4)
Do			Private	Ethical Culture School	1	34	165	30	7.00	3	975	225	
Do			Mission	Evangelical Lutheran Zion Church.	1	36	195	29		1	250		Same as public school.
Do			Private	Friends' Seminary Kindergarten.	1	29	165	[1] 24	8.00	2			
Do			do	Froebel League	1	44	141	20	25.00	4			

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Do			Mission	Grace Reformed Church	1	62	150	33		[1] 2			Kindergarten training.
Do			Association	Hebrew Day Nursery	1	50	250	34		1	960	720	Two years' kindergarten training.[2]
Do			Normal	Horace Mann Kindergarten	1	57	156	33	12.50	4			
Do			Mission	Hunts Point Presbyterian Church.	1	30	200	20		1	400		Same as public school.
Do			....do	Immanuel Evangelical Lutheran.	1	20	185	[1] 18		1	420		Standard not defined.
Do			Association	International Sunshine Society	2	30	303	28		2	[6] 350	[6] 250	Graduation from kindergarten training school.
Do			Mission	John Hall Memorial	1	[1] 43	290	35		2	480	240	Do.[2]
Do			....do	Mizpah Chapel	1	55	260	30		2	675	450	Certificate from kindergarten training school.
Do			....do	New York Turn Verein	1	30	200	20		1	(4)	(4)	(4)
Do			Association	New York Kindergarten Association.	40	3,044	192	1,600		80	1,250	550	High-school graduation; kindergarten training school graduation.[7]
Do			Mission	St. Bartholomew's Kindergarten.	4	250	220	175		9	700	500	Two years in approved kindergarten training school.
Do			....do	St. Luke's Chapel (Protestant Episcopal).	6	96	192	38		3	800	250	Kindergarten training-school graduation.
Do			....do	St. Matthew's Lutheran	1	37	180	25		1	600		Course in kindergarten normal.
Do			Private	St. Michael's School	1	20	140	19	[1] 20.00	2			
Do			Mission	St. Paul's Chapel (Trinity)	1	[1] 55	176	26		1	810	450	Kindergarten training school graduation.
Do			....do	St. Peter's Lutheran	1	23	155	17		1	240		Graduation from kindergarten normal.
Do			....do	St. Thomas Kindergarten	1	24	246	21		1	240		Graduation after 2 years' kindergarten training.
Do			Normal	Speyer School	1	40	160	35		2			
Do			Mission	University Place Presbyterian	1	50	180	20		1	600		High-school graduation; kindergarten training school graduation.
New Rochelle	28,867	1,241	Private	New Rochelle School and Kindergarten.	1	26	152	20	6.00	2			
Do			....do	Mrs. Beckwith's Kindergarten	1	40	168	36	[1] 7.00	1			
Niagara Falls	30,445	1,309	Parochial	Sacred Heart Parish	1	49	176	40		* 1	250		Special kindergarten training.
Ossining	11,480	493	Private	The Ossining School	1	12	170	10	6.25	1			
Oswego	4,633	199	....do	The Castle Kindergarten	* 1	17	165	15	5.00	1			
Peekskill	15,245	655	....do	Miss McDonald's School	1	22	186	16	2.80	1			
Do			....do	Miss Angell's Kindergarten	1	21	200	11	2.00	1			

* Teachers are Sisters.
[1] Approximate.
[2] Experience also required.
[3] Estimated.
[4] No data.
[5] Services given.
[6] Room, board, laundry, in addition to salary.
[7] Experience, musical ability, health, personal fitness.
[8] Statistics for year ended June, 1913.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
NEW YORK—continued.													
Plattsburgh	11,138	523	Parochial	St. Peter's Parochial	1	60	180	49	.....	*1	$200	$200	Teachers' institute certificate.
Potsdam	4,036	173	Normal	Normal School Kindergarten	1	[1] 25	180	[1] 20	.....	2	(2)	(2)	(2)
Rensselaer	10,711	460	Parochial	St. John's Academy	1	35	100	30	.....	*1	100	.....	Course in kindergarten work.
Rochester	218,149	9,380	Mission	Industrial School	1	[3] 45	300	30	.....	1	720	480	City training school graduation.
Do	.....	.....	Private	Columbia Preparatory School	1	10	165	8	*$9.00	1	.....	.....	
Rome	20,497	881	.....do	Anna M. Lanphier	1	16	195	11	4.00	2	.....	.....	
Tonawanda	8,290	356	Parochial	St. Francis Church	1	11	184	8	.....	*1	(4)	.....	State requirement.
Utica	74,419	3,200	Settlement	Italian Settlement (Methodist Episcopal Church).	1	[1] 40	60	[1] 32	.....	[1] 2	.....	.....	
Do	.....	.....	Private	Miss Anna Deeck's Kindergarten.	1	[3] 14	177	15	5.00	1	.....	.....	
Do	.....	.....	Orphanage	Utica Orphan Asylum	1	[3] 20	275	18	.....	1	[3] 264	.....	Ordinary education.
Watertown	26,730	1,149	Private	Miss Paris's Kindergarten	1	14	176	10	6.25	1	.....	.....	
White Plains	15,949	685	.....do	The Purdy School	1	15	230	14	6.00	1	.....	.....	
Yonkers	79,803	3,431	.....do	The Halsted School	1	6	176	4	4.75	1	.....	.....	
Do	.....	.....	Orphanage	Leake & Watts's Kindergarten	1	10	188	8	.....	1	408	.....	
NORTH CAROLINA.													
Asheville	18,762	806	Private	Asheville School for Girls	1	15	170	7	5.00	1	.....	.....	
Goldsboro	6,107	262	.....do	Goldsboro Kindergarten	1	20	154	16	4.00	1	.....	.....	
Greensboro	15,895	683	Mill	Proximity Manufacturing Co.	[5] 1	61	180	45	.....	3	480	135	
Hickory	3,716	159	Private	Mrs. Abernethy's Kindergarten.	1	22	155	14	3.00	1	.....	.....	
Lumberton	2,230	95	Mill	Jennings Cotton Mill	[6] 1	[3] 35	160	30	.....	1	320	.....	
Raleigh	19,218	826	Private	St. Mary's Kindergarten	1	30	155	15	3.00	1	.....	.....	
Wilmington	25,748	1,107	Mill	Delgodo Mills	1	[3] 50	(2)	[3] 40	.....	2	.....	.....	
Do	.....	.....	Mission	Home Missionary Society	1	52	160	30	.....	3	188	112	Teach while taking training.

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Wilson	6,717	283	Private	Wilson Kindergarten	1	16	170	[3] 14	3.00	1			
NORTH DAKOTA.													
Fargo	14,331	616	Association	Fargo Free Kindergarten Association.	1	56	176	36		3	270	135	High-school graduation.
Do			Parochial	St. Mary's Parish	2	48	200	[3] 45		[4] 3	([2])	([2])	State certificate, normal training.
Litchville	484	20	Free	Litchville Kindergarten	1	23	60	18		1			
Valley City	4,606	197	Normal	State Normal	1	44	177	30		1	1,100		Experience, degree, and special training.
OHIO.													
Alliance	15,083	648	Private	"Froebel" Kindergarten	1	18	160	14	3.00	1			
Athens	5,463	234	Normal	State Normal College Kindergarten.	1	28	178	17	1.00	2			
Cincinnati	363,591	15,634	Parochial	Parochial School System	7	375	195	292		[4] 7	300	250	([2])
Cleveland	560,663	24,108	Association	Cleveland Day Nursery and Free Kindergarten Association.	9	800	176	675		10	850	700	Graduation kindergarten training school.
Do			Private	Hathaway Brown Kindergarten.	1	23	160	16	7.50	2			
Do			....do	Windermere Kindergarten	1	50	200	25	5.00	2			
Do			Orphanage	Cleveland Protestant Orphanage Asylum.	1	18	187	15		2	600	300	Graduation kindergarten training college.
Columbus	181,511	7,804	Private	Miss Helen Louise Lentz	1	23	170	15	4.00	2			
Do			Association	First Social Settlement Society	1	87	170	42		1	340	340	High-school graduation; kindergarten training school.
Do			Mission	St. John's Chapel, Trinity Parish.	1	38	168	30		1	270	270	Kindergarten training school graduation.
Do			....do	St. Paul's Episcopal Church	1	40	[1] 180	20		1	[3] 315	[3] 225	Required kindergarten course.
Do			Private	Model Kindergarten	1	42	170	25	7.00	1			
Dayton	116,577	5,012	....do	Miss Howe's and Miss Marot's.	1	15	176	13	6.66	1			
Defiance	7,327	314	....do	Defiance Private Kindergarten	1	20	190	12	2.00	1			
Hamilton	35,279	1,516	Association	Federated Clubs	1	110	170	35		2	450	270	Three years' course in training school.
Lima	30,508	1,311	Private	East Lima Kindergarten	1	42	140	12	2.00	1			
Martins Ferry	9,133	392	....do	Miss Ida Hoyle's Kindergarten	1	30	120	18	2.00	1			
Maumee	2,307	98	Free	Lucas County Children's Home	1	22	200	18		1	420	420	Kindergarten normal.
Middletown	13,152	565	Private	Miss Kaser's Kindergarten	1	16	185	12	3.00	1			
New Bremen	1,586	67	Association	New Bremen Kindergarten	1	15	160	10		1	200		High-school graduation; normal school graduation.
Toledo	168,497	7,245	Private	Miss Southard's Kindergarten	1	35	180	30	[3] 5.50	2			
Do			....do	Kindergarten department Jones-Franklin School.	1	22	180	17	6.66	2			
Do			Orphanage	St. Anthony's Orphanage, Catholic.	1	40	185	32		1	100	100	([2])

* Teachers are Sisters.
[1] Estimated.
[2] No data.
[3] Approximate.
[4] Services given.
[5] Statistics for year ended June, 1913.
[6] Practice students in kindergarten training school.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers. Number.	Maximum salary.	Minimum salary.	Preparation required of kindergarten teachers.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
OHIO—continued.													
Youngstown	79,066	3,399	Association	Youngstown Free Kindergarten Association.	3	[1] 148	184	[1] 106	.....	7	$850	$400	High-school graduation; special college training.
Do	.....	.....	Settlement	Christ's Mission Settlement	1	100	179	50	.....	3	360	315	Kindergarten training school graduation.
OKLAHOMA.													
El Reno	7,872	338	Private	Sacred Heart Academy	1	75	165	60	$1.00	1	.....	.....	
Gotebo	740	32	Indian	Federal Government	1	35	182	17	.....	1	450	450	Kindergarten training school graduation; civil-service examination.
Hammon	130	5	.....do	.....do	1	11	175	6	.....	1	600	300	One year's course.
Tulsa	18,182	781	Private	Miss Brock and Miss Elliott's	1	24	179	12	4.00	1	.....	.....	
Whiteeagle	.....	.....	Indian	Federal Government	1	36	180	35	.....	1	864	600	Two years' training.
OREGON.													
Medford	8,840	380	Private	Seventh Day Adventist School	1	19	160	17	2.00	1	.....	.....	
Portland	207,214	8,993	.....do	Eliz. K. Matthew's Normal	1	30	175	20	[1] 5.50	1	.....	.....	
Salem	14,094	606	.....do	Anna Nowlen's Kindergarten	1	20	(2)	15	3.00	1	.....	.....	
Warm Springs	.....	.....	Indian	Federal Government	1	[1] 15	179	[1] 13	.....	1	500	500	Indian service standard.
PENNSYLVANIA.													
Allentown	51,913	2,232	Mission	Christ Lutheran Church	1	55	193	28	.....	2	(2)	(2)	High-schoo. graduation; 1 year's training.
Do	.....	.....	.....do	St. John's Lutheran Church	1	53	200	35	.....	1	450	450	Teachers' certificate, Drexel Home.
Do	.....	.....	Private	St. Michael's Lutheran Kindergarten.	1	45	180	20	1.00	1	.....	.....	

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Beaver Falls	12,191	524	Parochial	St. Mary's Roman Catholic Schools.	6	343	155	300		*6	160	160	Diocesan examination.
Braddock	19,357	832	Private	Primrose Nursery	1	16	173	10	2.00	1			
Butler	20,728	891	do	Miss Philips's Kindergarten	[1] 1	[1] 25	210	20	3.00	1			
Carlisle	10,303	443	Free	St. Katharine's Hall	1	30	200	20					
Chambersburg	11,800	507	Private	Miss Platt's Private Kindergarten.	1	25	[2]	15	2.00	1			
Clarion	2,612	112	Normal	State Normal Training School.	1	27	190	15	[2]	1			
Connellsville	12,845	552	Private	Playground and kindergarten.	1	70	[1] 120	[1] 40	2.00	3			
Crafton	4,583	196	do	Crafton Preparatory School	1	9	160	7	4.00	1			
East Stroudsburg	3,330	143	do	East Stroudsburg Model School	1	38	190	20		1			
Erie	66,525	2,688	Association	Erie Presbyterian Society of Home Missions.	1	80	240	25		1	600		Certificate of approved kindergarten training school.
Do			Parochial	Parochial school system	8	309	180	280		*8	240	240	Normal training.
Do			Private	Mrs. Reed's	1	8	[2]	8	4.00	1			
Galeton	4,027	172	do	Home Kindergarten	1	27	90	10	3.00	1			
Greensburg	13,012	559	do	Miss Irwin's Kindergarten	1	16	234	12	4.00	1			
Harrisburg	64,186	2,759	do	Froebel Kindergarten	1	30	185	25	15.00	2			
Do			do	Misses Seiler's Preparatory School and Kindergarten.	1	15	160	12	6.25	2			
Do			do	West End Kindergarten	1	25	187	12	3.00	1			
Hazleton	25,452	1,094	Association	Hazleton Free Kindergarten Association.	1	63	156	45		3	450	180	High-school graduation; 2 years' training.
Huntingdon	6,861	294	Private	Huntingdon Private Kindergarten.	1	20	140	[1] 18	3.00	1			
Kittanning	4,311	185	Free	Kittanning kindergartens	1	80	180	50		1			
Kutztown	2,360	101	Normal	Normal School Kindergarten	1	36	190	24	2.00	1			
Lancaster	47,227	2,030	Association	Lancaster Kindergarten Association.	3	144	200	87		3	[4] 550	400	Kindergarten course of 2 years.
Do			Private	Froebel Kindergarten	1	30	200	18	4.00	1			
Lansdowne	4,066	174	do	Private open-air kindergarten.	1	5	[2]	5	1.00	1			
Do			do	Lansdowne Friends School	1	6	177	3	6.00	1			
Lewisburg	3,081	132	do	Children's Private Kindergarten.	1	8	167	8	4.00				
Lock Haven	7,772	334	Normal	State Normal School Kindergarten.	1	35	200	25	[1] 1.50	1			
Luzerne	5,426	233	Free	Martha Bennett Welfare	1	70	184	62		2			
McKeesport	42,694	1,835	Association	McKeesport Free Kindergarten Association.	4	200	180	140		6	675	360	Two years' kindergarten training.
McKees Rocks	14,702	632	Mission	Shadyside Mission Kindergarten.	1	80	145	50		2			
Nanticoke	18,877	811	do	St. Mary's Polish Church	1	105	200	[5] 80		1	500		[2]
Overbrook	[2]		Private	Miss Sayward's School	1	20	160	17	10.00	3			
Phoenixville	10,742	461	do	Private kindergarten	1	5	160	[1] 4	4.00	1			

* Teachers are Sisters.
[1] Approximate.
[2] No data.
[3] Small weekly fee.
[4] Supported partly by association and partly by board of education.
[5] Estimated.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1913*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
PENNSYLVANIA—contd.													
Pittston	16,267	699	Private	Miss Hartman's Kindergarten.	[1] 1	16	180	10	2.00	1	.....	.....	
Reading	96,071	4,131	.....do	Miss Frederick's Kindergarten.	1	50	201	30	2.00	1	.....	.....	
Do	.....	.....	.....do	Miss Smith and Miss Miltimore's Kindergarten.	1	37	175	25	3.00	1	.....	.....	
Do	.....	.....	.....do	Miss Mersinger's Kindergarten.	1	12	177	8	2.00	1	.....	.....	
Do	.....	.....	Association	Reading Free Kindergarten Association.	4	120	176	94	.....	4	$450	$360	High-school and special training.
Ridley Park	1,761	75	Private	Ridley Park Kindergarten	1	12	217	8	5.00	1	.....	.....	
Scranton	129,867	5,584	Mission	City Evangelical Union Methodist Episcopal Church.	1	40	200	25	.....	1	400	400	Graduation from approved training school.
Do	.....	.....	Private	Frances M. Lindsay's Kindergarten.	1	16	[2] 200	14	[2] 6.50	1	.....	.....	
South Bethlehem	19,973	858	Parochial	St. John Capistrano	1	75	200	52	.....	1	300	300	[3]
Throop	5,133	220	Free	Logan Memorial Kindergarten	1	73	180	43	.....	2	500	.....	[3]
Tyrone	7,176	308	Private	Miss Miller's Kindergarten	1	13	[3]	[4] 9	2.50	1	.....	.....	
Washington	18,778	807	.....do	Fifth Ward Kindergarten	1	29	183	15	3.00	1	.....	.....	
Do	.....	.....	.....do	Miss Caldwell's Private School.	1	30	200	18	3.00	2	.....	.....	
West Chester	11,767	505	Association	The S. B. McConkey Kindergarten Association.	1	45	193	18	.....	1	350	350	Graduation from approved kindergarten training school.
Wilkes-Barre	67,105	2,885	.....do	Wyoming Valley Kindergarten Federation.	5	325	220	40	.....	5	500	400	Kindergarten training.
Do	.....	.....	Mission	First and Central Methodist Episcopal Church.	1	50	200	38	.....	1	500	.....	[3]
Do	.....	.....	Settlement	Settlement Association	1	40	200	30	.....	1	600	.....	High-school graduation; kindergarten training-school graduation.
Williamsport	31,860	1,200	Private	Froebel Kindergarten and Primary School.	[1] 1	25	180	18	3.50	2	.....	.....	
Do	.....	.....	.....do	Vallamont Kindergarten	1	30	180	15	3.00	2	.....	.....	

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Do			Free	Mrs. Theo. Beck's Kindergarten.	1	78	160	51		1			
Wyomissing	985	42	Association	Women's Civic League	1	23	[2] 180	16		1	160		
RHODE ISLAND.													
Albion	([3])		Parochial	St. Ambrose Church	1	53	295	51		1	240		([3])
North Providence	5,407	232	Private	Fruit Hill Kindergarten	[1] 1	13	136	10	2.00	1			
Lonsdale			do	Christ Church Kindergarten	1	35	184	28	.50	2			
Pawtucket	51,622	2,219	Parochial	St. John Baptist's	1	55	202	41		1	([3])	([3])	([3])
Peace Dale			Free	Stepping Stone Kindergarten	1	58	200	38		2			
Philipsdale			Private	Philipsdale Kindergarten	[1] 1	38	140	20	1.00	2			*
Providence	224,326	9,646	do	Misses Bronson's Kindergarten.	1	11	165	7	7.50	1			
Do			Normal	Normal School Kindergarten	1	52	186	35	8.00	2			
Do			Private	Miss Brown's Kindergarten	1	10	180	8	[2] 4.00	3			
Woonsocket	38,125	1,639	Parochial	Precious Blood Parish	1	95	197	86		*3	600		
SOUTH CAROLINA.													
Anderson	9,654	414	Mill	Brogan Mills	[1] 1	65	190	42		2	630		
Belton	1,652	70	do	Belton Mills	1	30	175	25		1	360		Testimonial from kindergarten training school.
Charleston	58,833	2,529	Association	Kelly Kindergarten Association.	1	45	150	39		2	225		Graduation from approved kindergarten training school.
Do			Free	Charleston Free Kindergarten (colored).	1	[2] 40	160	[2] 30		2			
Do			Association	South Carolina Kindergarten Association.	3	150	160	114		6			Do.
Do			Private	St. Philip Street	1	25	160	25	2.00	1			
Do			do	Home Kindergarten	1	10	164	8	3.00	1			
Do			do	Ashley Avenue Kindergarten	1	23	161	15	2.00	1			
Columbia	26,319	1,131	Mill	Parker Cotton Mills Co	[1] 3	66	180	45		3	450	180	
Do			do	Columbia Mills Co	[1] 1	104	180	100		2	700		
Do			Private	Miss Shand's Kindergarten	1	45	175	25	3.00	1			
Greer	1,673	71	Mill	Victor Manufacturing Co	1	50	150	40		1	300		
Greenville	15,741	676	do	Monoghan Mills	[1] 2	88	180	33		2	540	180	
Laurens	4,818	206	do	Laurens Cotton Mill	[1] 1	70	200	40		1	550		
Lando	([4])		do	Manetta Mills	1	38	180	26		1	[2] 450		
Pelzer	1,500	64	do	Pelzer Manufacturing Co	[1] 1	110	175	21		2	495		
Rock Hill	7,216	310	Normal	Winthrop College Kindergarten.	1	[2] 65	[2] 180	40	1.00	1			
Do			Mill	Little Neighbor Kindergarten	1	30	180	25		1	385		
Do			do	Hamilton Carhartt Manufacturing Co.	[1] 1	40	180	40		1	720		
Union	5,623	241	do	Monarch Cotton Mills	[1] 1	67	180	28		1	360		

* Teachers are Sisters.
[1] Statistics for year ended June, 1913.
[2] Approximate.
[3] No data.
[4] Estimated.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers.			Preparation required of kindergarten teachers.
										Number.	Maximum salary.	Minimum salary.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
SOUTH DAKOTA.													
Lead	8,392	360	Free	Hearst Free Kindergarten	1	284	177	115	.....	5	$675	$450	Graduation from approved kindergarten school and experience.
Madison	3,137	134	Normal	State Normal	1	45	177	20	.....	1	900	.....	Two years' kindergarten training.
Yankton	3,787	162	Private	Yankton Kindergarten	1	50	210	40	2.00	2	.....	.....	
TENNESSEE.													
Bemis	.....	.....	Mill	Jackson Fiber Co	[1] 1	48	198	29	.....	1	300	.....	
Chattanooga	44,604	1,917	Private	Miss Dyer's Kindergarten	1	18	100	15	2.00	1	.....	.....	
Do	.....	.....	....do	Highland Park Kindergarten	1	34	150	25	3.00	1	.....	.....	
Knoxville	36,346	1,562	....do	Park City Kindergarten	1	30	145	15	2.00	1	.....	.....	
Do	.....	.....	Association	Brookside Kindergarten Association.	1	94	181	51	.....	3	[2] 270	.....	Graduation from training school; 1 year's experience.
Do	.....	.....	Parochial	St. Mary's Parish	2	82	186	[3] 75	.....	* 2	200	200	Highest.
Do	.....	.....	Private	Miss Cunningham's Kindergarten.	1	16	180	14	2.00	1	.....	.....	
Memphis	131,105	5,678	Association	Federation of Jewish Charities.	1	80	132	66	.....	2	350	105	Kindergarten training certificate.[4]
Do	.....	.....	....do	First Methodist Church and Educational Alliance.	2	125	165	81	.....	3	120	(5)	
Nashville	110,364	4,745	Private	Kindergarten Department of Ward Seminary.	[1] 1	29	168	17	6.50	2	.....	.....	
Do	.....	.....	Settlement	Wanioto Settlement Kindergarten.	2	30	175	25	.....	1	[2] 225	.....	Two years' training.
Do	.....	.....	Association	Nashville Section Council Jewish Women.	1	54	166	37	.....	1	280	280	Graduation from approved kindergarten training school.
Do	.....	.....	Mission	Methodist Training School	1	27	145	20	.....	1	720	.....	(6)
Park City	5,126	220	Private	Park City Private Kindergarten.	1	26	180	19	(6)	1	.....	.....	

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TEXAS.													
Abilene	9,204	395	Association	Abilene Kindergarten Association.	1	27	170	17	2.50	1			
Austin	29,860	1,283	Private	Drew-Blair Kindergarten Training School.	1	25	180	18	(6)	2			
Ballinger	3,536	151	do	Ballinger Private Kindergarten.	1	22	175	16	2.50	2			
Canadian	1,648	70	do	Canadian Baptist Academy	1	36	176	23	3.00	1			
Dallas	92,104	3,960	Association	Dallas Free Kindergarten Association.	2	175	190	145		2	585	450	College graduation or equivalent.
Do			Private	Mrs. H. B. Taylor's Kindergarten.	1	[3] 25	(6)	[3] 20		1	(6)	(6)	
Do			do	Miss Mary Innes's Kindergarten.	1	[3] 30	(6)	[3] 28		1	(6)		
Do			do	Miss Ethel Cornett's Kindergarten.	1	[3] 20	(6)	[3] 15		1	(6)		
Fort Worth	73,312	3,152	do	Polytechnic Kindergarten	1	[7] 15	180	[7] 11	2.00	1			
Do			do	Miss Frances Moore's Kindergarten.	1	[7] 20	180	[7] 15	2.00	1			
Do			do	Tenth Ward Kindergarten	[8] 1	[7] 25	180	[7] 15	2.00	1			
Gainesville	7,624	327	do	Mrs. Hancock's Kindergarten.	1	30	100	20	3.00	2			
Galveston	36,981	1,590	do	Miss Branigar's Kindergarten.	1	[3] 20	(6)	[3] 17	(6)	1			
Do			Association	Johanna Runge Free Kindergarten Association.	1	75	[3] 180	60		5	[3] 540	[3] 135	Graduation from Kindergarten training school.
Houston	78,800	3,388	do	Houston Kindergarten Association.	3	175	175	135		3	630	450	Graduation from approved kindergarten training school.
Do			Private	Miss Swinford's Kindergarten	[1] 1	15	175	12	5.00	2			
Do			do	Mrs. W. J. Kinkaid's Kindergarten.	[1] 1	38	166	24	5.00	2			
Do			do	Miss Hall's Kindergarten	1	40	175	20	2.00	1			
Do			do	Misses Cushman's Kindergarten.	1	30	160	22	5.00	3			
Paris	11,269	484	do	Miss Bedford's Kindergarten	1	18	148	15	3.00	1			
Pearsall	1,799	76	do	Pearsall Kindergarten	[1] 1	25	138	17	1.50	1			
Port Arthur	7,663	329	do	Port Arthur Kindergarten	[1] 2	30	180	22	2.50	2			
San Antonio	96,614	4,154	do	Miss Talbot's Kindergarten	1	14	149	12	4.00	1			
Do			Association	San Antonio Kindergarten Association.	4	200	160	130		3	450	270	Kindergarten training.
Temple	10,993	472	Private	Temple Kindergarten	1	15	150	8	3.50	1			
UTAH.													
Provo	8,925	383	Private	Kindergarten department, Brigham Young University.	1	82	168	54	1.00	1			

* Teachers are sisters.
[1] Statistics for year ended June, 1913.
[2] Room, board, laundry, in addition to salary.
[3] Approximate.
[4] Experience also required.
[5] Services given.
[6] No data.
[7] Estimated.
[8] Taken over by public school, 1912-13.

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TABLE 6.—*Statistics of kindergartens other than public for year ended June 30, 1912*—Continued.

Cities and towns.	Total population, census 1910.	Estimated population of kindergarten age.	Type of kindergarten.	Kindergarten or supporting body.	Number of kindergartens.	Number of children enrolled.	School year, in days.	Average daily attendance.	Tuition per month.	Kindergarten teachers: Number.	Kindergarten teachers: Maximum salary.	Kindergarten teachers: Minimum salary.	Preparation required of kindergarten teachers.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
UTAH—continued.													
Salt Lake City	92,777	3,989	Private	Kindergarten department, University of Utah.	1	77	178	45	$1.00	3	.....	.....	
Do	.....	.....	Association	Salt Lake Free Kindergarten and Neighborhood House.	1	55	172	34	.....	1	$540	.....	High-school graduation; kindergarten training school graduation.
VERMONT.													
Brattleboro	6,517	279	Association	Thompson Trust and Brattleboro Women's Club.	1	48	196	21	.....	2	500	$200	High-school graduation; special kindergarten training.
Do	.....	.....	Free	Brattleboro Free Kindergarten	1	51	196	20	.....	2	350	.....	
Montpelier	7,856	337	Private	Miss Briggs's Kindergarten	1	9	145	6	4.00	1	.....	.....	
VIRGINIA.													
Alexandria	15,329	659	Association	Alexandria Free Kindergarten.	1	64	153	[1] 48	.....	2	280	200	Kindergarten training.
Danville	19,020	817	Mill	Dan River Cotton Mills	1	117	157	37	.....	4	[2] 1,062	[2] 594	Graduation from approved kindergarten training school.
Lynchburg	29,494	1,268	.....do	Lynchburg Cotton Mills	1	43	159	24	.....	2	400	320	Two years' kindergarten training.
Newport News	20,205	868	Free	Huntington Kindergarten	1	101	161	84	.....	4	.....	.....	
Norfolk	67,452	2,900	Association	Norfolk Kindergarten Association.	5	215	200	165	.....	11	500	300	Graduation from Norfolk high school.
WASHINGTON.													
Everett	24,814	1,067	Private	Everett Private Kindergarten.	1	36	192	20	2.00	1	.....	.....	
North Yakima	14,082	605	.....do	Alice Blatchford Scudder	1	38	187	16	2.50	2	.....	.....	
Seattle	237,194	1,027	.....do	The Seattle Kindergarten	1	18	200	11	4.50	1	.....	.....	
Do	.....	.....	Association	Methodist Deaconness Association.	1	35	195	20	.....	1	(3)	.....	Graduation from kindergarten training school.
Do	.....	.....	Private	Queen Anne Hill Kindergarten	1	73	198	15	3.00	1	.....	.....	

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Spokane	104,402	4,489	Association	Ladies' Benevolent Society	1	33	160	14		1	400	Graduation from approved kindergarten training school.
Do			do	Woman's Club Day Nursery	1	30	200	30		1	250	Graduation from Armour Institute.
Do			Private	The Manito Kindergarten	1	33	180	17	4.00	1		
Tulalip			Indian	Federal Government	1	25	250	25		1	660	600 Civil-service examination.
WEST VIRGINIA.												
Bluefield	11,118	478	Private	Bluefield Kindergarten	1	16	178	13	5.00	1		
Morgantown	9,150	393	do	Mrs. Hurxthal's Kindergarten	1	20	[1] 175	17	4.00	1		
Wheeling	41,641	1,790	Mission	King's Daughters	1	65	[1] 180	38		2		Kindergarten training.
WISCONSIN.												
La Crosse	30,417	1,307	Normal	State Normal School	1	25	200	16	10.00	1		
Merrill	8,689	373	Mission	Seventh Day Adventist Church School	1	6	180	4		1		
Milwaukee	373,875	16,076	Normal	State Normal	1	59	200	40		1	1,100	(4) Two years' training experience and study.
Do			Association	Milwaukee Mission Kindergarten and Neighborhood Association.	3	245	195	90		3	1,000	640 None.
Marinette	14,610	628	Parochial	Our Lady of Lourdes	1	54	200	40		[2] 2	209	Special training.
Oshkosh	33,062	1,421	Normal	State Normal	1	34	200	19	.70	1		
Platteville	4,452	191	do	State Normal	1	33	395	28		1		
Racine	38,062	1,634	Private	Mrs. Anderson's School	[5] 1	10	170	9	8.75	1		
Superior	40,384	1,736	Normal	State Normal School	1	[6] 64	200	51		1		
Waukesha	8,740	375	Association	Metropolitan Church Association	1	15	188	[1] 14		1	(6)	Educational requirements.
Whitewater	3,224	138	Normal	State Normal School	1	45	200	22		1		

[*] Teachers are sisters.
[1] Approximate.
[2] Room, board, laundry, in addition to salary.
[3] No data.
[4] Practice-students in kindergarten training school.
[5] Statistics for year ended June, 1913.
[6] Services given.

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List of kindergartens for which no statistical data are available.[1]

States and cities.	Name of kindergarten.
Alabama:	
Birmingham	Ensley Wesley House.
Bessemer	Miss Adam's Kindergarten.
Do	Miss Brun's Kindergarten.
Sheffield	Free Kindergarten.
Arkansas:	
Okolona	Miss Alice Stewart's Kindergarten.
Texarkana	Central High Kindergarten.
California:	
Los Angeles	Angelus Vista School.
Do	Chinese Kindergarten.
Do	Misses Jane's Kindergarten.
Oakland	Dennison Street Settlement Kindergarten.
Do	Good Will Free Kindergarten.
Do	Key Route Inn Kindergarten.
Do	Orphans' Home Kindergarten.
Do	Plymouth Church Kindergarten.
Do	Miss Ruth Seeley's Kindergarten.
San Francisco	Emanuel Kindergarten Society (2 kindergartens).
Do	Occidental Free Kindergarten.
Do	Pixley Memorial Free Kindergarten.
Santa Rosa	California Fruit Canner's Association Kindergarten.
Colorado:	
Denver	Belle Lennox Nursery.
Do	Froebel Montessori School.
Do	Miss Anna Woolcut's Kindergarten.
Pueblo	Sacred Heart Orphanage.
Do	Woodcroft School.
Connecticut:	
Hartford	North Street Kindergarten.
Lakeville	Connecticut School for Imbeciles.
New Haven	New Haven Orphan Asylum.
Springfield	Mrs. Francis M. Page's Kindergarten.
Waterbury	St. Mary's Parochial Kindergarten.
Windsor	Miss Carter's Kindergarten.
Delaware:	
Wilmington	Home for Friendless and Destitute Children.
Dist. Columbia:	
Washington	Neighborhood House.
Do	Lucy Webb Hayes Kindergarten.
Do	Washington Home for Foundlings.
Florida:	
Jacksonville	Miss Adele Jocabi's Kinder garten.
St. Augustine	St. Augustine Free Kindergarten.
Georgia:	
Atlanta	Gate City Free Kindergarten.
Do	Normal School Kindergarten.
Do	West End Kindergarten.
Macon	Appleton Church Home Kindergarten.
Savannah	Miss Agnes Lyon's Kindergarten.
Illinois:	
Belleville	Miss Lily Flanagan's Kindergarten.
Do	St. John's Orphanage.
Chicago	Angel Guardian Orphan Asylum.
Do	Avondale Kindergarten.
Do	Francis E. Clark Settlement.
Do	Forty-first Street Pres. Ch. Kindergarten.
Do	Gad's Hill Settlement.
Do	Grace Church.
Illinois—Contd.	
Chicago	Lillian White Grant's Kindergarten.
Do	Hull House.
Do	Miss Mary Otterson's Kindergarten.
Do	Park No. 1 and No. 2 Kindergartens.
Do	Plymouth Kindergarten.
Do	Mrs. Frederica Root's Kindergarten.
Do	St. Paul's Kindergarten.
Do	Stevan's School for Girls.
Do	Unitarian Church Kindergarten.
Do	Wilson Avenue Y. W. C. A.
Do	Woodlawn Avenue.
Decatur	Daggett Kindergarten.
Edwardsville	Leclair Kindergarten.
Elgin	First Methodist Church Kindergarten.
Freeport	Miss Edith Christler's Kindergarten.
Galesburg	Miss Rheda Coates's Kindergarten.
Godfrey	"Beverly Farm" Home and School for Nervous and Backward Children.
Harvey	Miss Mabel Lewis's Kindergarten.
Hoyleton	Evangelical Orphanage.
Joliet	Miss Dorothy Henderson's Kindergarten.
Lake Bluff	Methodist Deaconess Orphanage and Epworth Church Home.
La Salle	Miss Myrtle McGinnis's Kindergarten.
Lincoln	State School and Colony.
Paxton	Miss Merrie Mill's Kindergarten.
Quincy	Cheerful Home.
Springfield	Lavina Beach Mission Kindergarten.
Urbana	Cunningham Children's Home.
Indiana:	
Brazil	Private Kindergarten.
Indianapolis	Ketcham Kindergarten.
South Bend	Laurel Kindergarten.
Do	St. Joseph County Association Kindergarten.
Terre Haute	The Rose Orphan Asylum.
Iowa:	
Beloit	United Norwegian Lutheran Church Orphans' Home.
Davenport	Soldiers' Orphans' Home.
Sioux City	Miss Jane Green's Kindergarten.
Kansas:	
Enterprise	Miss Gladys Johnson's Kindergarten.
Kansas City	Fellowship House Kindergarten.
Leavenworth	Free Kindergarten Association.
Wichita	Wichita Children's Home.
Winfield	State Home for Feeble Minded.
Kentucky:	
Louisville	Miss Elizabeth Brown's Kindergarten.
Do	Children's Home Society.
Louisiana:	
New Orleans	Jewish Orphans' Home.
Maine:	
Gardiner	House of the Good Shepherd
Portland	Miss Marion P. Dana's Kindergarten.
West Pownal	Maine School for Feeble-Minded.

[1] See also list on p. 89.

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List of kindergartens for which no statistical data are available.—Continued.

States and cities.	Name of kindergarten.
Maryland:	
Baltimore	Egenton Home.
Do	Hampden Free Kindergarten.
Do	Home of the Friendless.
Do	Light Street Free Kindergarten, Nursery, and Child's Hospital.
Cambridge	Mrs. Handby's Kindergarten.
Salisbury	Miss Elizabeth Humphrey's Kindergarten.
Massachusetts:	
Boston	Mrs. Copely-Greene's Kindergarten.
Do	Emanuel House.
Do	Guild of St. Elizabeth.
Do	Home for Destitute Catholic Children.
Do	New England Home for Little Wanderers.
Do	Roxbury Neigborhood House.
Do	South End House.
Fall River	St. Joseph's Orphanage.
Falmouth	Martha Hall Kindergarten.
Hudson	Miss Laura Brigham's Kindergarten.
Ipswich	Mrs. Robert Brown's Kindergarten.
Do	Mrs. Geo. Taylor's Kindergarten.
Leominster	Miss Fannie L. Flint's Kindergarten.
Lexington	Congregational Kindergarten.
Lynn	Lynholm By the Sea.
Melrose	Miss Francis Lowdon's Kindergarten.
Milford	Froebel Kindergarten.
Natick	Mrs. Geo. B. Haven's Kindergarten.
N. Attleboro	Miss Ryder's Kindergarten.
Pawtucket	Miss Marietta King's Kindergarten.
Wakefield	Miss Grace White's Kindergarten.
Waverly	Massachusetts School for Feeble-Minded.
Worcester	Orphanage of Our Lady of Mercy.
Wrentham	Wrentham State Normal.
Michigan:	
Coldwater	Michigan State Public Schools.
Detroit	Miss Florence M. Clark's Kindergarten.
Do	Detroit Industrial School and Free Kindergarten.
Do	Detroit University School.
Do	East Side Settlement Association Kindergarten.
Do	Italian-American Institute.
Do	Jefferson Avenue Kindergarten.
Grand Rapids	D. A. Blodgett Home for Children.
Do	Grace Church Parish Free Kindergarten.
Do	Sacred Heart Academy.
Minnesota:	
Faribault	Minnesota School for Feeble-Minded and Epileptic.
Minneapolis	Washburn Memorial Orphan Asylum.
Mississippi:	
Jackson	Mississippi Baptist Orphanage.
Missouri:	
Alton	Cherry Street Baptist Kindergarten.
Cape Girardeau	State Normal School Kindergarten.
Kansas City	Miss Barston's Kindergarten.
Do	Miss Richard's Kindergarten.
Do	Sisters of Zion.
Missouri—Contd.	
Kansas City	Miss Francis Scott's Kindergarten.
St. Louis	German Protestant Orphans' Home.
Do	Girls' Industrial Home.
Do	Mission Free School, Church of the Messiah.
Warrenton	Central Wesleyan Orphan Asylum.
Montana:	
Boulder	Montana Training School for Backward Children.
Nebraska:	
Beatrice	Institution for Feeble-Minded Youth.
Lincoln	Congregational Church Kindergarten.
York	Mothers' Jewels Home.
New Hampshire:	
Dover	Miss Ruth Dearborn's Kindergarten.
Laconia	New Hampshire School for Feeble-Minded.
Manchester	Mrs. Moore's Kindergarten.
New Jersey:	
Elizabeth	Egenolf Day Nursery.
Englewood	Daisy Field's Home and Hospital.
Hackensack	Mrs. Richards's Kindergarten.
Jersey City	Miss Ida L. Lewis's Kindergarten.
Montclair	Miss Doubleday's Kindergarten.
Newark	Newark Orphans' Home.
Parsippany	Morris County Children's Home.
Paterson	Miss Jennie Hover's Kindergarten.
Do	Miss Margaret Hoxsey's Kindergarten.
Skillman	New Jersey State Village for Epileptics.
Trenton	Miss Bessie Van Syckle.
New York:	
Albany	Orphan Asylum.
Albion	Mrs. Robert Moore's Kindergarten.
Auburn	Miss Marion Tripp's Kindergarten.
Bath	Davenport Home.
Blauvelt	Asylum of Sisters of St. Dominic.
Brooklyn	Angel Guardian House.
Do	Brooklyn Industrial Home.
Do	First Hebrew Day Nursery and Kindergarten Association.
Do	Katharine Tilney Kindergarten.
Do	Messiah Lutheran Kindergarten.
Do	Methodist Episcopal Church Kindergarten.
Do	Nostrand Avenue Methodist Episcopal.
Do	Orphan Asylum Society.
Do	Park Avenue Branch Congregational.
Do	Miss M. T. Purdy's Kindergarten.
Do	St. John's Home.
Do	St. Mark's Protestant Episcopal.
Do	Strong Place Baptist Church.
Buffalo	Buffalo Orphan Asylum.
Do	Fitch Crèche.
Hudson	Orphan and Relief Association Kindergarten.
Iroquois	Thomas Indian School.

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List of kindergartens for which no statistical data are available.—Continued.

States and cities.	Name of kindergarten.
New York—Contd.	
Long Island (Garden City)	House of St. Giles.
Long Island (Kings Park.)	Howard Orphanage Industrial Home.
Matteawan	Miss Amy DuBois's Kindergarten.
Nanuet	St. Agatha Home.
New York	Ascension Memorial Protestant Episcopal Church.
Do	Barnard School.
Do	Bethany Congregational Church.
Do	Bloomingdale Guild.
Do	B'nai Jeshurum Congregation.
Do	Bohemian Kindergarten.
Do	Calvary Baptist Church.
Do	Catharine Mission.
Do	Central Presbyterian Church.
Do	Miss Chapin's Kindergarten.
Do	Church of the People.
Do	Colored Orphan Asylum.
Do	E. and M. Davidsburg Kindergarten.
Do	Educational Alliance Association.
Do	Friendship Neighborhood House.
Do	Grace Church Day Nursery.
Do	Halsey Day Nursery.
Do	Hamilton House.
Do	Hawthorne School.
Do	Hebrew Infant Asylum.
Do	Hope Day Nursery.
Do	Jenny Hunter Training School.
Do	Intercession Chapel Protestant Episcopal.
Do	Italian Methodist Episcopal Church.
Do	Miss Jacobi's School.
Do	Misses Johnston's School.
Do	Little Mother's Day Nurseries (3 kindergartens).
Do	Madison Avenue Reformed.
Do	St. Agnes Day Nursery.
Do	St. Augustine Protestant Episcopal.
Do	St. Chrysostom's Protestant Episcopal.
Do	St. Joseph's Orphan Asylum.
Do	School of Mothercraft.
Do	Miss Mary Schoonmaker's Kindergarten.
Do	Scotch Presbyterian Kindergarten.
Do	Scudder School for Girls.
Do	Virginia Day Nursery.
Do	Warren Goddard House.
Do	Washington Heights Day Nursery.
Do	West Side Day Nursery.
Oswego	Oswego Orphan Asylum.
Peekskill	Mount Florence School.
Randall's Island.	New York City Children's Hospital and School.
Rochester	Rochester Orphan Asylum.
Do	St. Joseph's Asylum.
Saratoga Springs.	Miss Copeland's School.
Schenectady	Miss Anna A. Merriam's School.
Syracuse	Onondaga Orphans' Home.
Do	St. Vincent's Asylum.
Troy	Troy Orphans' Home.
Utica	House of the Good Shepherd Kindergarten.
Do	St. Joseph's Infants' Home.
White Plains	Noble School.
North Carolina:	
Asheville	Miss Lizzie Steven's Kindergarten.
Ohio:	
Cleveland	Christ Church Kindergart
Columbus	Hungarian Kindergarten.
Do	Mrs. L. H. Innis's Kinder ten.
Do	Institution for Feeble-Min
Lancaster	Miss Arabel Wright's Kin garten.
Marietta	Miss Rhea Hill's Kinder ten.
Troy	Miss Margaret Geiger's dergarten.
Oklahoma:	
Chickasha	Miss Lottie Harris's Kin garten.
Pennsylvania:	
Ambridge	Ambridge Kindergarten.
Archbald	Daisy Memorial Kinder ten.
Beaver	Free Kindergarten.
Berwick	Y. M. C. A. Kindergarten
Braddock	The Hazel House Kinder ten.
Harrisburg	Miss Mary Cresswell's Kin garten.
Do	Pine Street Presbyter Church Kindergarten,
Lansdowne	Brookwood School for N ous and Backward Child
Lebanon	Miss Joyce Light's Kin garten.
Polk	Western Pennsylvania S Institution for Feeble-M ed.
Reading	Miss Moyer's Kindergarte
Renovo	Miss Margaret Green's dergarten.
Scranton	Miss Gertrude Coursen's el Kindergarten.
Spring City	Eastern Pennsylvania S Institution for Feeble-M ed.
Steelton	Miss Edith D. Young's dergarten.
Warren	Miss Blanch E. Jacks Kindergarten.
South Carolina:	
Abbeville	Miss Julia P. Wiley's dergarten.
Columbia	Columbia Free Kindergar
Greenville	Female College.
Tenessee:	
Bristol	Mrs. Sam Carter Wadd Kindergarten.
Murfreesboro	Bristol-Nelson School.
Nashville	Mrs. W. H. Binns's Kin garten.
Do	Miss Lucille Manning's dergarten.
Texas:	
Belton	Miss Van Doren's Kinder ten.
Bonham	Bonham Free Kindergart
Dallas	Presbyterian Mission dergarten.
Fort Worth	Miss Grace Myles's Kin garten.
Galveston	Walter Colquitt Mem Hospital.
Paris	Miss Madge Seckel's Kin garten.
San Antonio	Miss Edith Gholson's Kin garten.
Sulphur Springs.	Miss Ella Ashcroft's Kin garten.
Vermont:	
Rutland	Church Street Kindergart

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List of kindergartens for which no statistical data are available.—Continued.

States and cities.	Name of kindergarten.
Washington:	
Aberdeen	W. J. Patterson Kindergarten.
Chehalis	Miss Cooke's Kindergarten.
Medical Lake	State Institution for Feeble-Minded.
Seattle	Miss Daniel's Kindergarten.
Do	Day Nursery Kindergarten.
Do	Miss Emma Moctin's Kindergarten.
Do	University Kindergarten.
Spokane	Miss L. C. Barrett's Kindergarten.
Do	Miss Zula Bethel's Kindergarten.
Do	Mrs. Maud Heleniak's Kindergarten.
Do	Holy Name Academy.
Washington—Con.	
Spokane	Spokane Children's Home.
Tacoma	Mrs. Harry S. Couch's Kindergarten.
Do	Steele Street Kindergarten.
West Virginia:	
Wheeling	South Side Kindergarten.
Wisconsin:	
Chippewa Falls	Wisconsin Home for Feeble-Minded.
Green Bay	Miss L. Wiese's Kindergarten.
Jefferson	St. Coletta's Institution for Feeble-Minded.
Lake Geneva	Oak Leigh Educational Sanitarium.
Watertown	Lutheran Home for Feeble-Minded and Epileptic.

Kindergartens not represented in the foregoing tables.[1]

States and cities.	Name of kindergarten.
Alabama:	
Birmingham	Avondale Wesley House Kindergarten.
Do	Mrs. D. H. Green's Kindergarten.
Do	Presbyterian Mission Kindergarten.
Sheffield	Misses Jones and Cook's Kindergarten.
Talladega	Talladega College Kindergarten.
Tuskegee	Children's House.
Arkansas:	
Little Rock	Arkansas Deaf-Mute Institute.
California:	
Eldridge	Sonoma State House.
Los Angeles	First Cong. Church Kindergarten.
Marysville	Miss Klockenbaum's Kindergarten.
Petaluma	Pepper Kindergarten.
Redwood City	San Mateo Kindergarten.
Ukiah	Mrs. E. C. Rodwick's Kindergarten.
Colorado:	
Denver	French Kindergarten.
Pueblo	Minnequa Kindergarten.
Connecticut:	
New Haven	Miss Thos. Maud's Kindergarten.
Delaware:	
Wilmington	Miss Blanche Eaton's Kindergarten.
Florida:	
Jacksonville	Boylan Home and Industrial School for Girls.
Do	Misses Shine and Bland's Private Kindergarten.
Viking	Fort Pierce Kindergarten.
Georgia:	
Atlanta	Baptist Settlement Kindergarten.
Do	Miss Susie Griffith's Kindergarten.
Do	Jewish Temple Kindergarten.
Do	Sixteenth Street Kindergarten.
Homerville	Miss Ruth Water's Kindergarten.
Statesboro	Miss Robinson's Kindergarten.
Illinois:	
Aurora	Aurora Free Kindergarten Association.
Illinois—Contd.	
Chicago	Chicago Nursery and Half Orphan Asylum.
Do	Church of the Advent Kindergarten.
Do	Lexington Avenue and Sixty-first Street Kindergarten.
Do	McCowan Oral School for Young Deaf Children.
Do	Metcalf Kindergarten.
Do	Mosley Kindergarten.
Do	Rogers Memorial Church Kindergarten.
Do	St. Mary's Kindergarten.
Do	The Misses Spaid's Kindergarten.
Do	West Division Street Kindergarten.
Freeport	St. Vincent's Orphan Asylum.
Rock Island	Day School for Deaf.
Indiana:	
Anderson	Washington Kindergarten.
Iowa:	
Davenport	Ladies Industrial Society Kindergarten.
Glenwood	Iowa Institution for Feeble-Minded Children.
Kansas:	
Atchison	State Orphan's Home.
Kentucky:	
Farmdale	Stewart Home and School.
Frankfort	Kentucky Institute for Feeble-Minded Children.
Louisville	Kentucky Institute for Education of the Blind.
Olive Hill	M. E. Church Kindergarten.
Louisiana:	
New Orleans	Zito Free Kindergarten.
Maine:	
Eastport	Miss Robinson's Kindergarten.
Portland	Maine School for the Deaf.
Maryland:	
Baltimore	Affordby Normal School.
Do	Brown Memorial Mission.
Do	Miss James's Kindergarten.
Do	Jewish Settlement House Kindergarten.
Do	Locust Street Settlement Kindergarten.
Do	Nursery and Childs' Hospital Kindergarten.
Do	Reed Memorial Kindergarten.

[1] See also list on p. 86.

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Kindergartens not represented in the foregoing tables—Continued.

States and cities.	Name of kindergarten.
Maryland—Contd.	
Baltimore	Reid Memorial Guild Kindergarten.
Do	W. C. T. U. Mission Kindergarten.
Frederick	Maryland School for Deaf and Dumb.
Overlea	School for the Blind.
Ridgely	Ridgely Kindergarten.
Westminster	Miss Stella Knapp's Kindergarten.
Massachusetts:	
Boston	East Boston Neighborhood House.
Do	South Bay Union Kindergarten.
Do	School for the Blind.
Brockton	First Baptist Church Kindergarten.
Brookline	South End Day Nursery.
Holyoke	Our Lady of Perpetual Help School.
Lee	Charitable Kindergarten.
Lynn	Miss Chase's Kindergarten.
Do	Neighborhood House.
New Bedford	St. Mary's Home.
Taunton	Miss Marion Peck's Kindergarten.
Worcester	Adams Square Cong. Church Kindergarten.
Michigan:	
Detroit	Berean Baptist Church Kindergarten.
Do	Franklin Street Settlement Day Nursery.
Do	Reed School for Nervous and Backward Children.
Grand Rapids	Mrs. Eugene M. Holmes's Kindergarten.
Lansing	Michigan School for the Blind.
Lapeer	Mich. Home for Feeble Minded and Epileptics.
Saginaw	Miss Utella Kump's Kindergarten.
Minnesota:	
Albert Lea	Miss Edith Haupt's Kindergarten.
Minneapolis	Frau Brockmann's German Kindergarten.
Do	Miss Edith Jones's Kindergarten.
Do	Miss Bertha E. Lyon's Kindergarten.
Owatonna	State Public School for Dependent Children.
St. Paul	Protestant Orphan Asylum.
Mississippi:	
Jackson	Institute for Deaf and Dumb.
Okolona	Okolona Industrial School.
Winona	Winona Kindergarten.
Missouri:	
Fulton	Missouri School for the Deaf.
Independence	Mrs. Hamilton s Kindergarten.
St. Joseph	Wesley House Kindergarten.
Do	Miss Raffington's Kindergarten.
St. Louis	Episcopal Kindergarten.
Do	Missouri School for the Blind.
Do	Neidringham Memorial Kindergarten.
Do	Under-Age Kindergarten Association (5 kindergartens).
Montana:	
Boseman	Little Holland Kindergarten.
Nebraska:	
Nebraska City	Nebr. School for the Blind and Deaf.
New Hampshire:	
Concord	Miss M. Etta Bailey's Kindergarten.

States and cities.	Name of kindergarten
New Jersey:	
Cranberry	The Larches Educationa Ifarium.
Jersey City	Hasbrouck's School for
Montclair	Miss Edith Baldwin's K garten.
Summit	Arthur Home for the Bl
Trenton	New Jersey School fo Deaf.
Vineland	N. J. Institute for F Minded Boys and Girl
New Mexico:	
Alamogordo	N. Mex. Institute fo Blind.
Truchas	Methodist Mission Scho
New York:	
Albany	Home School for the De
Aurora	Miss E. Judson's Kind ten.
Brooklyn	Brooklyn Labor Lyceu sociation.
Do	Cuyler Presbyterian C Kindergarten.
Do	Gardner Memorial Day sery.
Do	Gillespie Memorial Day sery.
Do	Italian Kindergarten.
Do	Lenox Road Bap. C Kindergarten.
Do	Little Mothers' Aid Day ery.
Do	Northern Day Nursery.
Do	Society of Inner Missio Rescue Work.
Buffalo	Le Canteulx St. Mary's tntion for Deaf Mutes.
Elmira	Kindergarten Training S
Hoosick Falls	Neighborhood House K garten.
Keesville	Miss Tufft's School.
Lockport	First Free Cong. Churcl dergarten.
Malone	Nor. N. Y. Institut Deaf Mutes.
Middletown	Grace Church Parish Kindergarten.
Newburgh	Children's Home.
New York City	Bedford Park Cong. C Kindergarten.
Do	Bethany Day Nursery dergarten.
Do	Bethlehem Day Nursery dergarten.
Do	Bryson Day Nursery K garten.
Do	Chelsea Day Nursery K garten.
Do	Cornell Memorial M. E.C Kindergarten.
Do	Finch School.
Do	Grace Mission Day Nur
Do	Hebrew Day Nursery.
Do	Immanuel Ger. Luth. C Kindergarten.
Do	Institution of Mercy K garten.
Do	Institution for Improv struction of Deaf Mut
Do	Incarnation Chapel K garten.
Do	Jewel Day Nursery.
Do	Kipps Bay Day Nurse
Do	Lisa Day Nursery.
Do	Little Missionary's Day ery.
Do	Madonna Day Nursery.
Do	Masters School Day Nu
Do	"Mater Dei" Day Nurs
Do	Mission House of St. Ma Virgin.

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Kindergartens not represented in the foregoing tables—Continued

ies.	Name of kindergarten.	States and cities.	Name of kindergarten.
ntd.		Oklahoma—Contd.	
ity.	Nazareth Day Nursery.	Muskogee	Miss Katheryn Keating's Kindergarten.
	New York Institution for the Blind.	Oregon:	
	New York Institution for the Instruction of the Deaf and Dumb.	Salem	Oregon School for the Deaf.
	New York Parochial School Kindergartens (12).	Do	Oregon School for the Blind.
	Presentation Day Nursery of the Blessed Virgin Mary.	Pennsylvania:	
	Reno Margulies's School for Children with Defective Hearing.	Allentown	St. Paul's Lutheran Kindergarten.
	Riverside Day Nursery.	Altoona	Miss Hotchkin's Kindergarten.
	St. Agnes Day Nursery.	Chester	The Ridley Park Kindergarten.
	St. Agnes Chapel Kindergarten.	Easton	St. John's Lutheran Kindergarten.
	St. Cecilia's Day Nursery.	Edgewood	W. Pa. Institute for the Deaf and Dumb.
	St. Ignatius Loyola Day Nursery.	Endeavor	Mrs. N. P. Wheeler's Kindergarten.
	St. John's Day Nursery.	Elwyn	Pennsylvania Tr. Sch. for Feeble-Minded Children.
	St. Joseph's Day Nursery.	Erie	Miss Lloyd's Kindergarten.
	St. Mary's Kindergarten.	Overbrook	Pennsylvania Institution for the Blind.
	St. Michael's Day Nursery.	Philadelphia	Mount Airy Kindergarten.
	St. Paschal Day Nursery.	Do	Neighborhood House Kindergarten.
	St. Vincent de Paul Day Nursery.	Do	Pennsylvania Institution for the Deaf and Dumb.
	San Salvatore Italian Mission.	Pittsburgh	Methodist Deaconess Home.
	Seventh Street M. E. Church Kindergarten.	Do	Thurston-Zleim School.
	Silver Cross Day Nursery.	Do	W. Pa. Institution for the Blind.
	Speyer School.	Pottsville	The Free Kindergarten Association.
	Sunbeam Day Nursery.	Royersford	Miss Jessie Townsend's Kindergarten.
	Sunnyside Day Nursery.	Scranton	Pennsylvania Oral School for the Deaf.
	Wayside Day Nursery.	Swarthmore	Swarthmore School and Kindergarten for the Deaf.
	Wilson Industrial School Day Nursery.	Valencia	Lillian Home Kindergarten.
	Wright Oral School.	West Chester	Miss McNeill's Kindergarten.
	Zion Lutheran Church Kindergarten.	Wilkes-Barre	Miss Ayre's Kindergarten.
	Miss Bessie Hogan's Private Kindergarten.	Wynnewood	Hathaway School.
	Wes. N. Y. Institution for Deaf-Mutes.	Rhode Island:	
	Russell Sage Playground Association.	Providence	R. I. Institution for the Deaf.
	State Institution for Feeble-Minded Children.	Do	St. Mary's Orphanage.
ns...	Chatterton Hills Cong. Church Kindergarten.	South Carolina:	
:		Allendale	Gallaway Hall Settlement Kindergarten.
	Mrs. Maggie Moore's Kindergarten.	Do	Haines Institute.
	Laurel Cliff Cobo Mills Kindergarten.	Camden	Pine Creek Mill Kindergarten.
	St. Mary's School Kindergarten.	Charleston	South Side Kindergarten.
	School for the Deaf and Blind.	Do	Y. W. C. A. Kindergarten.
	State School for the Deaf and Blind.	Lancaster	Miss Jones's School.
		Walhalla	Walhalla Mill Kindergarten.
e....	N. Dak. School for the Deaf.	South Dakota:	
	Institution for Feeble-Minded.	Sioux Falls	S. Dak. School for the Deaf.
	Euclid Heights Kindergarten.	Tennessee:	
	Laurel School.	Oakdale	Miss Amanda Kimmder's Kindergarten.
	West Mound Street Kindergarten.	Texas:	
	Ohio State School for the Blind.	Angleton	Mrs. William's Kindergarten.
	State School for the Deaf.	Austin	Deaf, Dumb, and Blind Institution for Colored Youths.
	Central Kindergarten.	Do	Texas School for Defectives.
	Miss Helen Smackard's Kindergarten (3).	Anson	Miss Colbert's Kindergarten.
	Oberlin Training School Kindergartens (3).	Brackettville	Brackettville Kindergarten.
		Dallas	Dallas Training School Kindergarten.
	Institution for Feeble-Minded.	Utah:	
	Miss Elizabeth Chorn's Kindergarten.	Ogden	Utah School for the Deaf and and Blind.
		Salt Lake City	Phillips Cong. Church Kindergarten.
		Virginia:	
		Falls Church	Virginia Home and Training School for Feeble-Minded.
		Harrisonburg	State Normal School Kindergarten.

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Kindergartens not represented in the foregoing tables—Continued.

States and cities.	Name of kindergarten.	States and cities.	Name of kindergarten.
Virginia—Contd.		Washington—Con.	
Leesburg	Miss Louise Davis's Kindergarten.	Walla Walla	Miss Gregory's Kindergarten.
Norfolk	St. George's School Kindergarten.	West Virginia:	
Richmond	The Alice Parker Kindergarten.	Huntington	Miss Clara Nichol's Kindergarten.
Roanoke	Roanoke Kindergarten Association.	Wisconsin:	
Staunton	Virginia School for the Deaf and Blind.	Delavan	Wisconsin School for the Deaf.
Washington:		Janesville	Wisconsin School for the Blind.
Vancouver	State School for the Blind.	Milwaukee	Miss Margaret Sammond's Private Kindergarten.
		Racine	Day School for the Blind.

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III. KINDERGARTENS AS VIEWED BY SUPERINTENDENTS, PRIMARY SUPERVISORS, AND FIRST-GRADE TEACHERS.

In June, 1913, the Commissioner of Education sent to 127 cities the following two inquiries, the first to superintendents of schools, the second to primary supervisors and first-grade teachers under them:

Your city has, I believe, had kindergartens as a part of its public-school system for several years—long enough to test their value as a part of the system of public education. The Bureau of Education wishes to ascertain, as nearly as possible, just what this value is. To assist in this, will you kindly write me in detail your candid opinion in regard to the matter?

I desire especially to know what advantage children in the primary grades of the public schools who have had kindergarten training have over those who have not; also, what adjustments, if any, need to be made between the kindergarten and the lowest primary grades. Your experience and observation should enable you to speak with some degree of authority on this subject. May I therefore ask you to write me fully in regard to both points?

The response to these inquiries was unusually generous. In a number of cities the school authorities instituted careful investigations among their own supervisory and teaching force, so that the opinions received represent considerably more than a mere personal statement from the administrative officer or teacher who replied. It is obviously impossible to print all the replies, or even the most interesting; but an attempt has been made to present a few of the opinions that seemed to be, for one reason or another, particularly timely, representative, or significant in idea or expression.

In general, the sentiment as revealed in these replies was overwhelmingly favorable to the kindergarten; there was surprising agreement as to the benefits of kindergarten training. It is not easy to determine whether those failing to reply have been unable to obtain kindergartens or are actually opposed to the idea. It is not unfair to say, however, that notably favorable replies were received from those cities whose educational systems have long been known for their general excellence; and in many such cities advocacy of the kindergarten amounts to an enthusiasm rarely expressed with regard to any other phase of school work.

Particularly interesting reports, mainly of favorable tenor, were received from teachers in the following cities: San Diego, Cal.; Jamestown, N. Y.; Mansfield, Ohio; Grand Rapids, Mich.; Cleveland, Ohio; Sheboygan, Wis.; Akron, Ohio; New Haven, Conn.; New

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Orleans, La.; Jersey City, N. J.; Pittsburgh, Pa.; South Bend, I
Kalamazoo, Mich.; Omaha, Nebr.; Bayonne, N. J.; Provide
R. I.; Troy, N. Y.; New Britain, Conn.; Minneapolis, Minn.; M
chester, N. H.; Richmond, Va.; Des Moines, Iowa; Superior, W
Dayton, Ohio; Cambridge, Mass.; and Sacramento, Cal. In n
instances only one opinion out of many excellent ones from a city
be given. Unfavorable opinions were received from groups
teachers in two cities, one in Pennsylvania and one in Virginia.

Very complete investigations were made by superintendents
supervisors in New York, Philadelphia, Louisville, Baltimore, Rac
Passaic, N. J., Buffalo, Utica, N. Y., Tacoma, Wash., and Den
The material thus gathered is of peculiar value, representing fi
hand experience, and such of it as may not be used in this bull
has been filed for reference and possible further use.

The Denver reply is fairly typical of the more complete inqui
In that city the supervisor of kindergartens and primary, Miss G
Parsons, obtained the opinions of five representative Denver teach
Two were uncompromising advocates of the kindergarten, who
that if there was any need for adjustment it was with the prim
that there could be, as one expressed it, "a more liberal use of obj
and symbols in primary work." A third teacher thought the
dergarten should make more effort to give the child a definite
and hold him to it. Another believed strongly in kindergar
training, but outlined a rather elaborate plan of readjustments
thought desirable. The fifth teacher was plainly skeptical of cer
phases of kindergarten training. "I believe," she writes, "
a child who comes from a home where a mother has the time, abi
and desire to live with her children can and does do just as g
work in first grade without ever having been in kindergarten."
points out two customary criticisms of some kindergartens: (1)
great freedom, making it difficult for the first-grade teacher to get
children broken of "noisy habits"; (2) excessive dependence of
children upon the director, so that when they come to first gr
they find it hard to settle down and do for themselves. This tea
concedes, however, that the kindergarten-trained child "is n
at ease, more graceful for having had the rhythm work, and tel
story more easily. His handwork, if not too much supervised
better than that of the child who has not been to kindergarten,
he dramatizes more naturally." But she adds that "the first-gr
child who has not been to kindergarten gets it all so very qui
that I often think the time spent in kindergarten would be be
spent out of doors, provided all other home conditions are as t
should be." Of course this teacher would readily admit that
other home conditions" seldom are as they should be.

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ummarizing the opinions of her teachers, Miss Parsons as follows.

every grade teacher should have the kindergarten principles in her train-
t the kindergarten teacher should study in normal schools and be prepared
kindergarten or grade work. I further feel that one supervisor should have
e kindergarten and primary grades, as in Denver. Primary teachers who
uld be allowed to work with some good kindergartner for a year, and the
r should be allowed to do grade work in the same way. This will make
that we can not have two conflicting, opposing systems in one school,
teachers must agree on some common plan of procedure. This has been
at extent; the kindergarten has influenced the whole school movement to a
ee, and the child study movement, the new psychology movement, and
hods in the grades have in turn modified the kindergartens beneficially.
the age may be that our children attend school, there should be a pre-
iod in which the children are brought into vital contact with real experi-
and the things in their immediate environment, under a trained adult.
is unable to arrange blocks and sticks, to use sand and clay, to play simple
his fellows, is not ready for the detailed work of the school. The kinder-
place for the testing and trying out of children, and for the application
measures, the aim being to develop the individual as harmoniously as
o child should be placed in a first grade until he is ready to attack its
th ease and vigor, and until his body shows decided powers of coordina-
trol. The kindergarten corresponds to that long period of race develop-
schools were heard of, and any tendency to formalize or curtail freedom
rgarten will spoil its value as a response to child needs at this culture
l.

acoma (Wash.) opinions were particularly interesting, acoma does not have kindergartens as part of the public tem. One teacher prefaced an otherwise favorable opinion g that she "very much doubted the advisability of con- average child in any sort of school much before he is 6 ge." Another conceded the advantages possessed by chil- came from private kindergartens into her school, but l how much of this was due to the higher home standards s who were able to afford private kindergartens. The ies were unqualifiedly favorable. One teacher declared:

ntage possessed by kindergarten-trained children came home to me several years experience with children so trained, I took a school in upils had not had kindergarten work. The unresponsiveness of these s something I could not at first account for.

finitely hostile opinions are expressed, as noted above. lly, however, a city is heard from where there seems to be antipathy to the kindergarten idea. The explanation is to be found in some especially unfortunate experience with kindergartens. The following from a western superin- peaks for itself:

years ago the school board established kindergartens throughout the city. enormously to the expenses of the school department, and in many cases,

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I am told, were of poor quality. An investigation was precipitated in which it peared that children without any kindergarten training did even better in the prin grades than children who had had kindergarten experience.

The upshot of it was that kindergartens were thrown out even more abruptly t they were introduced, and since that time the mere mention of public kindergar has had an effect upon the public mind similar to that produced upon the bo species by the waving of a red flag. So you see I am not in a position to speak great assurance on the kindergarten question.

Less severe instances of the effect of purely local conditions noticeable in several cities, and need always to be taken into acco in reading various opinions. Thus one teacher in Norfolk, frankly declared that, judging from the children she had tau in first grade, she considered those who had had kindergarten train to be "superficial, and with a poorly balanced nervous organis as a result of the work; while another teacher in the same explained:

Since the school age in Virginia is 7, it is difficult for us to judge kindergarten dren fairly. Seven-year old children who come to us from kindergartens have ei remained there too long or have been out one or more half terms before we get th In either case we do not get kindergarten influence at its best.

My own experience during the past two years has been in a crowded slum dist largely with foreign children—Greeks, Italians, Syrians, and Russians. I find these children, who have had kindergarten training, have a much better comm of English, are more courteous, and respond more quickly to all the demands of schoolroom than other children.

In striking contrast to the skepticism of a few of the letters is decisive statement of Supt. McDaniel, of Hammond, Ind., wh is typical of many replies received:

We have had the kindergarten as part of the regular school work in every buil in our city for 20 years. We feel that its results are vital; that children enter the grade more intelligent than those who have not had that training; that their minds bodies respond to the needs of the regular work to such an extent that the time ne sary for adjustment is materially decreased.

A. OPINIONS OF SUPERINTENDENTS.

F. E. SPALDING, Newton, Mass.—Kindergartens have been maintained throug the city of Newton about 20 years, and are accessible to practically all chil in the city. We believe the kindergartens to be a valuable department of our pu educational system. Two years ago I made formal inquiry of all the first and sec grade teachers regarding the value of kindergarten training as they observed it in children that came to them. About three-fourths of all children entering our prim grades have spent from a year or a year and one-half to two years in the kindergar The replies of our first and second grade teachers to my inquiry were practically un mous in favor of the kindergarten training.

C. EDWARD JONES, Albany, N. Y.—We have had kindergartens in our city for a many years. We would hardly know how to maintain a public-school system wit them. If all home conditions were ideal and children could have free play and door exercise until they were 6 years of age, the need of the kindergarten would be great. But no such conditions exist in any city. The kindergarten, there

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A. "WHO'LL BE THERE FIRST?"
Such active games tend to develop freedom and mastery of the body.

B. "PLAY IN THE OUT-OF-DOORS."
Kindergarten endowed in perpetuity by Dr. Cornelius N. Hoagland, Brooklyn, N. Y.

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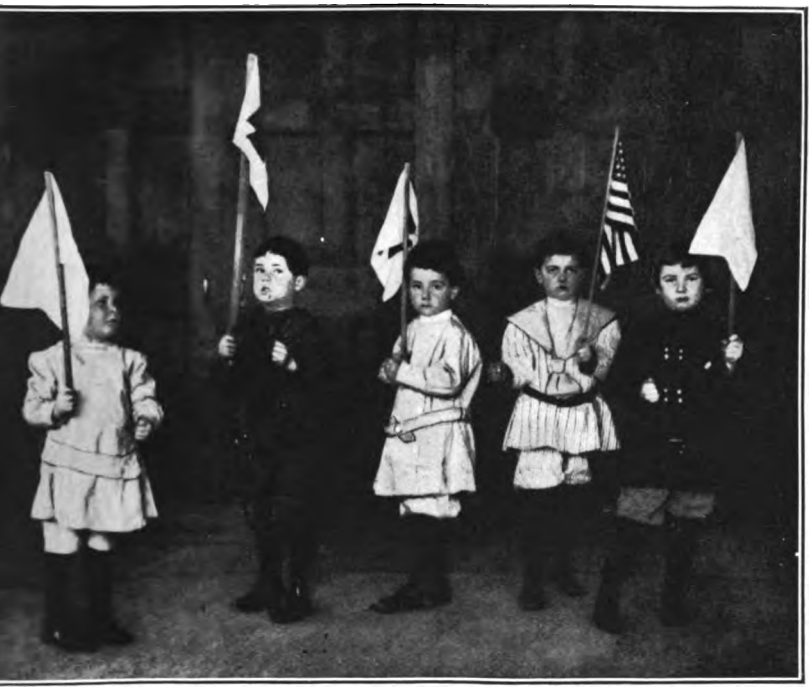

A. "THREE CHEERS FOR THE RED, WHITE, AND BLUE."
To the call of the flag the erect heads and lifted chests make loyal response.

B. "ONE-TWO, ONE-TWO, MARCH ALONG"
Rhythmic movements help the body to be a free and graceful instrument of the mind.

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supplements the home. It gives training in how to work and how to play in such a way as to be of value in the future work, and in addition to this it also supplements what in many cases is a meager home life.

WILLIAM L. WELSH, district superintendent, Philadelphia, Pa.—The value of the kindergarten to any community depends upon two things: (1) The character of the neighborhood; (2) the skill and efficiency of the teacher having charge of the kindergarten.

A district in which the people are possessed of an average income, and where the mothers have abundant time to care for the children, has no need of a kindergarten. It is better for the children that they should be much out of doors, engaged in play and such physical exercises as will develop them bodily than to be compelled to remain indoors for the small mental and social gain which they would receive under the care of the teacher. It is my opinion that we are not placing sufficient emphasis on the value of a strong physique for young children, and that we are overemphasizing the importance of early mental culture. The preeminent requirement for our boys and girls is that they should lay the foundation for good physical health.

In districts having congested population of the lower classes, where the people are much restricted in means and the mothers have not the time to give their children that attention and care which they should have, a kindergarten is very helpful. It provides a place where the children are safe from the dangers of the street and where they may receive instruction and training which their mothers would be unable to give. Usually this class of children have only the street for a playground, and therefore would receive little physical development by any play exercise at home. I should, therefore, favor the establishment of kindergartens in these neighborhoods in sufficient numbers to accommodate all the children of appropriate age.

Under the second head I would say that it is my opinion that the benefit of a kindergarten in any district depends almost entirely upon the manner in which it is conducted. Under a good teacher it may be very useful; under a poor one it is almost valueless. I discover that the opinions of the principals of my district on this question vary almost exactly in proportion to the efficiency of the teacher having charge of their kindergarten. If they have a good teacher, their judgment is favorable; if they are unfortunate enough to have a poor one, they think the reverse. My personal observation coincides with the impressions of the principals. Children who are one or two years under the care of a good woman are better prepared for the work of the following grade and are more alert and resourceful than those who have missed this influence. Under a poor teacher, they acquire bad habits of behavior and imbibe wrong ideas of school order and their relationship to the teacher and fellow pupils.

Where the conditions are favorable and the teacher is of at least average ability, the advantages of kindergarten training are many. Considered from the standpoint of scholastic training, I believe that the children are usually more self-reliant, original, and more apt to take the initiative. They have a quicker understanding, a little more power to think, and therefore usually make more rapid progress in their studies. Their powers of observation are perhaps keener, and they have a better general knowledge. They recognize form and color more readily and have a somewhat better use of their hands. They have a better command of language, are more proficient in counting, and their scholastic standing is apt to be higher. Some principals do not agree to this last statement.

On the other hand, children trained in kindergarten, when they enter the primary grades, are not so amenable to restraint and are, therefore, as a class more difficult to discipline. They are restless, desire too much attention, and seem to require some time to get down to real work. The majority of primary teachers agree that in the beginning children who have passed through kindergarten are more difficult to control.

The kindergarten has an influence socially on the boys and girls. The pupils in the grades following respond more quickly to the little courtesies of life. They asso-

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ciate more freely with other children and their social training reaches up through grades. They possess more of a community spirit and thus serve to unify the inter of the class.

Taking conditions in the large as we find them in our cities, there can be no do that the kindergarten is an important element of our school system. I believe it should be retained, but that judgment should be used as to the neighborhoo which it is established, and that the teachers should be selected with regard to t adaptation to this particular work.

HERBERT S. WEET, Rochester, N. Y.—We have a kindergarten in every elen tary public school in Rochester. Personally, I have every confidence in these dergartens. So far as any definite information is concerned, we can not prove children who have had kindergarten training do, through the regular grades, any be work, so far as immediately measurable results are concerned, than do the chil who have not had such training. I have a strong impression, however, that th due more to our inability in the grades to avail ourselves of the kind of work wh the kindergarten has given than it is to the absence of valuable training on the of the kindergarten. Whether we shall ever be able to prove through school rec that the child trained in the kindergarten is more efficient along those lines in wh the school can adequately test for efficiency I do not know. I believe, however, the beautiful spirit of our kindergartens gives a joy and a happiness to childhood impetus in the way of social cooperation and a training in the way of kindness, c tesy, and other essential qualities that fully justify our whole expenditure in it.

D. J. KELLY, Binghamton, N. Y.—I have no sympathy with the kinderga as a side issue to our regular school work or, as some one has called it, a "de luxe partment" in our educational system. The work should be so planned and conduc as to offer an efficient connecting link between the home and the regular first-gr work, and should articulate as closely with the first grade as the first grade art lates with the second.

In this city I found children were permitted to enter the kindergarten at 4 y of age and at the age of 6 were passed on to the first grade regardless of ability. meant that many children remained in the kindergarten two years and came to upon the school as a very monotonous institution. With promotion on the basi age alone, the work of the kindergarten was of very little help to the first-grade teac since the material coming to her was lacking in uniformity.

During the past year I have changed this arrangement so that children enter kindergarten at 5. The course is planned for one year, the first half pure kinder ten work and the second more of a connecting class. Certain standards were es lished for our promotions from the kindergarten, just as from any other grade, these standards were based entirely upon proficiency, instead of age. In other wo when a child reached a certain degree of proficiency he was put into the first gr regardless of his age or how long he had been in the kindergarten. Some child reach this state in half a year and some in a year and a half. It meant, however, when the first-grade teacher received the product of the kindergarten it had the s degree of uniformity as any product of the school.

J. V. BRENNAN, Ironwood, Mich.—We have had kindergartens as a departm of our public-school system for a number of years. This community consists of m nationalities and the people are practically all workers in the iron mines or al the iron mines. Families are usually large and the kindergarten here is a second h to the majority of the children. It is a place for the children to live as well a learn. Very many of the children learn to speak the English language in the kin garten. The kindergarten gives these children a right attitude toward schools school work. In fact, without the kindergarten as an adjunct to the home, sch progress here would be considerably retarded. The children who enter the gra

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from the kindergarten do much better work, as an average, than those who do not get this training. In my judgment, the kindergarten is an exceedingly valuable part of a school system, especially so in a working community where families are usually large and the parents occupied in the matter of making a living.

A. R. BRUBACHER, Schenectady, N. Y.—We are now maintaining 18 kindergarten classes, each one in charge of a specially trained teacher with a full equipment of kindergarten supplies and apparatus. From an acquaintance of five years, I offer the following opinion regarding the value of kindergarten work:

First. A kindergarten training is unnecessary and an unwarrantable expense of time and energy on children who come from well-regulated homes with opportunity for outdoor life and first-hand contact with nature and the ordinary mechanisms of daily life.

Second. Kindergarten training is of real value where the home conditions are artificial. I have especial reference to city homes where children have no outdoor freedom and to the homes of the wealthy where the child is either neglected or given into the hands of servants.

Third. Kindergarten training is especially valuable in the case of children who come from very poor homes. This applies especially where parents are either morally unfit or are so poor that they can not give the training demanded by common decency.

GERARD T. SMITH, Peoria, Ill.—Kindergartens were introduced into the Peoria public schools five years ago by popular vote. The first year we had only 6 schools. They have increased at the rate of one or two schools each year until we now have 13, with the prospect of the introduction of new ones until each of the 19 elementary schools shall have a kindergarten connected with it. This expansion of the department in itself answers the question as to whether we believe there is value in kindergartens as a part of the public-school system. The introduction was made in the face of scepticism and general disbelief in their educational worth, by primary teachers but this attitude has almost entirely changed. Personally, I consider that the undefinable influences are very marked in our schools. Moreover, I find that our children enter the subsequent grades with much better mental poise, as well as ability to think and act, than children who have not been in kindergartens. In our intermediate grades we now have fewer failures, and on the average our children are somewhat younger than formerly. While other causes may contribute somewhat to this, I attribute it largely to the influences of the kindergartens.

F. H. BEEDE, New Haven, Conn.—We have had kindergartens in New Haven for 20 years and I believe strongly in the value of their work. In this line of work, as in any, mistakes will be made and mistakes have been made; nevertheless, the main work of the kindergartens is, in my opinion, wholesome and useful. Fifteen years ago, first-grade teachers preferred to have children directly from the home, without previous school experience, rather than to have children from kindergartens. Their feeling was that kindergarten children had not learned prompt obedience and the formalities of school routine. To-day probably every first-grade teacher in our city would prefer to have kindergarten children. Their testimony is that these children have more initiative, more experience, a larger fund of school information, and a habit of doing school work in conjunction with other children. Their social instinct has been developed. The old-fashioned teacher who wants mainly to "hold down" school children does not want kindergarten children. The up-to-date teacher whose thought is to develop her children, to enlarge their power of initiative, and to develop responsiveness on their part, asks every time for kindergarten children.

There is the further thought that in the foreign districts, kindergartens are doing a splendid work in taking children as crude material from the homes and introducing them to life under the leadership of a few fine women.

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M. A. CASSIDY, Lexington, Ky.—Twenty-six years ago the kindergarten was made a part of the Lexington public-school system. This city was, therefore, one of the first to take this important step in educational progress. I was then superintendent, and ever since I have watched with great interest kindergarten growth and development. Within that time, a large number of children have been promoted from these kindergartens to the primary schools, and it has been my pleasure to compare their progress with that of those who have not had the advantage of kindergarten training. Beyond doubt, the progress of kindergarten-trained children is much more satisfactory in every way.

In Lexington the Montessori plan is used to make the adjustment between the kindergarten and the lowest primary grade. This work is supplemented by such primary work as will better prepare the pupil to enter upon the regular grade work. This has been very successful here, and I could give many instances of dull minds awakened through the use of the Montessori material.

C. E. CHADSEY, Detroit, Mich.—My experience with kindergartens now extends over a period of years, both in Denver and in Detroit, and I can express myself most emphatically in favor of very liberal expenditures for kindergarten purposes. While the results of the kindergarten are not always tangible, that is, they can not always be measured with reference to the specific work accomplished in the elementary grades, I am convinced that the general value to the child through increasing his stock of general emotions, particularly with reference to his social relations with his fellows, justifies the expenditure incurred.

The attitude of our kindergarten teachers in recent years has greatly increased the value of the kindergarten. The appreciation of the social significance of the work and the saner methods used, justify one in having a most optimistic attitude concerning the future usefulness and improvement of the kindergarten.

H. F. LEVERENZ, Sheboygan, Wis.—The schools of this city would not appear complete, and would not be complete, without the kindergartens. They have been a part of the public-school system of this city since 1890; they have always been popular and they have been liberally supported, although a few individuals have occasionally questioned their value. No one who knows kindergartens will question their value in sense training and also physical and moral training. Parents who have had children in the kindergarten are often found giving testimony of these values without intending to do so.

The kindergarten introduces the child into school life in the proper manner. This point can not be overestimated, for this attitude toward school life accompanies the child to and through the succeeding grades. The kindergarten is also the means of bringing parents in contact with school more than any other grade.

JEREMIAH RHODES, Pasadena, Cal.—Pasadena has well-organized, thoroughly equipped, and modern kindergartens. I believe thoroughly in the kindergarten idea and feel that our experiment in Pasadena has abundantly proved the work of the kindergarten in socializing the community; in bringing children in the best way from the home to the primary schools; and in demonstrating the necessity for liberalizing our ideas of public-school administration and teaching. Without question we are getting greater value from the kindergartens as organized in our city than from any other single department of our school work.

Our kindergartens are in bungalows, especially constructed for the purpose, and at the same time definitely connected with our schools, each being located on the corner of the campus.

ALLEN P. KEITH, New Bedford, Mass.—In September, 1897, kindergartens were first opened in our schools, and 4 were maintained until 1909. Because of constant friction between the kindergartners and the first-grade teachers, the kindergartens were never extended in the system.

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When our course of study was revised in 1908, we aimed to correct this misunderstanding by establishing a class to be known as "kindergarten and subprimary class." We admitted children to the kindergartens at 5 years of age, and to the subprimary at 5½ years. The subprimary class attend the morning session and the kindergarten class the afternoon session. We now have 12 such classes in the city, and they are very popular in the districts in which they are located, both with the parents and with the teachers. The first-grade teachers are now glad to get children who have had this previous training, and we look for the extension of the work.

ELLA FLAGG YOUNG, Chicago, Ill.—With respect to a better relation between kindergarten and first grade in our school system, it may be said that the influence of the kindergarten spirit and methods upon the whole of elementary education, and particularly upon primary education, has been so great during the last 25 years as practically to unite kindergarten and first-grade classes. The transition is certainly not greater than that between elementary and high school or between high school and college. Wherever special provision has been made to join kindergarten and first-grade by some such expedient as an intermediate class, the plan has been abandoned. Such classes have proved undesirable and unnecessary.

JAMES M. TILLEY, assistant superintendent, Terre Haute, Ind.—In our system pupils who have had kindergarten training are credited with: (1) Coordination of muscles—ability to work with hands; (2) freedom of association and expression; (3) some power to take "orders" and to visualize; (4) some knowledge of color, construction, rote singing, and rhythm; (5) an enlarged and intensified child life which forms the basis for habits of politeness and service.

In our system we provide for the above advantages through classification. Each first primary room has at least two classes—1C and 1B. All entering pupils are classified as 1C; in a month or so the stronger pupils, with or without kindergarten training, are classified as 1B's and at the close of the term (5 months) they are promoted to 1A. The slow pupils at the same time become 1B's. In this way the pupils with kindergarten training are in no way hindered in their progress.

FRANK D. SLUTZ, Pueblo, Colo.—1. We asked each of our first-grade teachers this question, Do you consider that children who have had kindergarten training do better first-grade work than those who have not?

Nine teachers answered. Out of the nine two said "No" and seven said "Yes."

2. The following general suggestions were made by the teachers:

(*a*) If we might have a better coordination of kindergarten and primary work, we would get better results.

(*b*) Kindergartners do not study primary conditions enough nor do the primary teachers know what to expect or require of the kindergarten children.

(*c*) There is great need of a beginner's room.

(*d*) The teachers agree that the kindergarten is valuable in the following respects: Children are made happy and joyful in songs and games. The kindergarten is a great help to the home. The kindergarten is responsible for some gain in musical control.

The teachers also agreed that the following are arguments against the kindergarten: It has no definite purpose; it is not always well disciplined, and the children are not encouraged to do independent work.

OTIS ASHMORE, Savannah, Ga.—Replying to your inquiry concerning the effects of kindergarten training upon the pupils of the public schools, I will say that we do not have kindergartens connected with public schools in Savannah, but there is a very good system of private kindergartens here, nearly all of whose pupils go through our public schools later on in their course. A few years ago I made an exhaustive investigation of the points at issue. I assumed that if the kindergarten training was of any special benefit to the child, it would be revealed in his attainments in scholar-

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ship and deportment in the grammar schools. Theoretically, kindergarten train should increase the powers of the mind, especially in the domain of perception memory; and those qualities which are usually embraced under the head of dep ment should also reveal the effects of the cultural work done in the kindergart My plan of procedure was to adopt measures to eliminate the personal equation all prejudice, and to compare the records of a year of all children who had atten a kindergarten with the records of those who had not attended a kindergarten. averages of these two groups were taken by schools and then consolidated. At close of the year after the records had been made and recorded this comparison the scholarship and deportment records was made. Every precaution was taken make the investigation fair and exhaustive, and I am sure that these ends were attain

The results were interesting. In some schools there was a slight indication in fa of the kindergarten group, and in others a slight indication in favor of the nonk dergarten group. The consolidation of the results showed for the whole city alm an exact balance. While the balance was very slightly in favor of the nonkind garten group, it was so slight that it was not at all significant. The inference to drawn from this investigation is that any benefits which may have been given children by kindergarten training in Savannah were not revealed by this investigati

Final conclusions should not be made from this investigation, for behind it all stands the question, May not kindergarten training give to the child qualities wh this test does not reach, and may not similar investigations in other cities, and e in our own city, show different results? From my observations, however, I do think the results are far from the truth in Savannah. The kindergarten child d indeed, have some theoretical advantage over the nonkindergarten child along tain lines which are very obvious, but the nonkindergarten child, especially child of our mild southern climate, with its outdoor freedom and opportunities self-activity and self-direction, also has some advantage over the child who may be much restrained and directed. It is a large question, with much truth and m error combined in claims on both sides.

A. E. KAGEL, assistant superintendent, Milwaukee, Wis.—We have a kind garten in each of our public schools; in two of our schools the number of child entitled to admission is so large that we are obliged to have two kindergartens in e of them. Our teachers have all been trained in normal schools. We put particu emphasis upon language and sense training, rhythms and music. Children who h had one year's training in the kindergarten easily finish the first grade by the t they are 7 years old; that is, they do first-grade work in 1 year. In schools wh a large number enter the school at the age of 6 years, the first-grade teachers are a ious to get those children who have had a year's training in the kindergarten, rat than those who just come off the street, because they take directions better, are m alert, and are able to distinguish forms better, and hence learn to read and spell m readily. Besides, the hand-training they have received makes them more profici writers, and their general conduct is better, particularly in their dealings with e other.

In many of our schools we have organized mothers' clubs, in order to bring mothers early into harmony with the school and to get their cooperation. Excursi to neighboring shops, to parks, and games played outdoors constitute part of the k dergarten program. In a number of kindergartens 10-o'clock lunch, consisting of m and crackers, is served. The expense is 5 cents a week for each child. This mo is either raised by school entertainments or is contributed directly by the childr

We consider the kindergarten indispensable for all classes of children. It is h that the child gets his first lesson in democracy and social obligation.

J. M. H. FREDERICK, Cleveland, Ohio.—Until the present year Cleveland had a su visor of kindergarten work. This year we have aimed to combine the supervisio

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the kindergartens with the supervision of the grades. Our purpose has been to unite this special activity more closely with the regular school work. As a result I think our kindergarten teachers feel that they are more essentially a part of the school system than ever before, and the elementary teachers have seized the opportunity afforded them to incorporate in their work a large measure of modified and adapted kindergarten devices and methods. The trial, to be sure, has been brief, but the results appear to be better even than we had anticipated.

The kindergarten is no longer a thing apart from the elementary schools in Cleveland. There is a growing sentiment here that if a child could have but eight years of school life, it would be better to begin with the kindergarten and close with the seventh grade, than to begin with the first grade and finish the eighth. I think that there is not so much need that the kindergarten work shall be adjusted to the primary grades as that the primary grades shall be adjusted to the kindergarten idea.

My observation for many years of the kindergarten-trained child in the regular school has convinced me thoroughly that the work not only gives greater power, but what is more important, it begets the true attitude to life and society.

B. OPINIONS OF PRIMARY SUPERVISORS.

FANNIE B. GRIFFITH, St. Louis, Mo.—Good kindergarten training, which wisely and sympathetically directs and utilizes the child's active impulses and love of play, provides for little children an easy and happy transition from the freedom of the home, with its more or less conscious tuition, to that of the school where less freedom can be allowed and where the tuition is more conscious, purposeful, and systematic.

A child who has had training in a good kindergarten gives practical evidence of it when he begins primary work. Comparing him with a child who has not had this training, I should say that, as a rule, he uses his hands more deftly, has a better idea of form and number, expresses his thoughts more freely in spoken language, is more self-confident, exercises more self-control, adjusts himself more readily to new conditions, follows directions more intelligently, is more observant and attentive, more resourceful in amusing and helping himself, and has a better idea of the proper way to conduct himself in social intercourse with his equals.

In discussing the matter of needed adjustments between the kindergarten and the lowest primary, it is encouraging to note that the breach between these two departments of instruction has been greatly lessened. Some 20 years ago the old order of primary education, which has been criticised for formalism in instruction and repression in management, began to give place to the new, and the work has since been more or less in a state of flux. The nature, needs, and interests of the child have been studied and an effort made to adapt the work to meet the needs of childhood The primary teacher, as well as the kindergartner, has for her guiding principle the vital principle in a child's development, his self-activity. While the formal subjects of the primary grade—reading, writing, spelling, and arithmetic—differ greatly from kindergarten work, the content of the modern readers and story books make so strong an appeal to the child's interest, and the methods of teaching the various subjects are so interesting that the child from the kindergarten beginning first-grade work enjoys his new work quite as much as that which he has left.

ETHEL WAGG, Passaic, N. J.—If the kindergarten work has been of a poor quality I doubt if children with kindergarten training have any advantage over those without it. By poor quality, I mean work of such a character that bad school habits are formed, for instance, little discipline, slovenly manual work, and so much memory work attempted in the way of songs, folk dances (with more songs), and verses for every season, day, and duty, that the majority of the children form the habit of mum-

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bling the words they don't know and of depending on the few bright children w are leaders to carry them along.

Children who have been in such a kindergarten are to be pitied, but not more perhaps than the first-grade teachers to whom they will be promoted. I have s a kindergarten which approximated the above. I believe, however, that they rare.

On the other hand, when children are promoted from kindergarten to first-gr with 5 months' or a year's training in obedience, cooperation, and good mann they are much easier to manage in a class of 40 or 45 than children who have not had t training.

Children who have been taught to be attentive and observing in kindergarten le to read in first grade with greater rapidity than those who have not received t training. If through the kindergarten work a reasonable motor control has b secured, the work of learning to draw and write is greatly lessened for the first-gr child. I believe that, with common sense, kindergarten-trained children are a real advantage over those of the same degree of mentality who have not received t training, namely, in their knowledge of general school life and in their ability to t the work more easily and rapidly.

A. M. Fosdick, principal, Franklin School, San Diego, Cal.—The primary teach of Franklin School are unanimously in favor of the kindergarten, in which opin I heartily concur. They say that through experience they are positive that th children who have had the kindergarten work have marked advantages over th who have not, and name the following as perhaps the more salient points of advants (1) Greater development of the social instinct; they play and work together bet (2) more self-reliance; (3) better power of concentration; (4) decided gain in handwo (5) happier outlook upon school life, gained through the early direction of the insti for play.

Miss Lucy G. Bristol, Louisville, Ky.—Children coming from kindergarten first grade, when they have really had any consecutive kindergarten work, have ma advantages over the child coming directly from home. The kindergarten child learned to take to himself directions or instruction given to a group or class of childr where the home child will not respond, unless appealed to individually. He learned to follow directions with reasonable accuracy; to handle himself and his wo ing materials intelligently, where the home child is frequently helpless. He learned considerable self-control, and has been taught to work in harmony with companions.

The "spoiled" child and the unfortunate "only" child, who have ruled the hou hold, here learn that they are only one of many and that others have rights that m be respected.

Most kindergarten children are willing to attempt new work with some confide in their own ability, while the home children often have to be coaxed to make effort. During this term, a little girl of over 6½ years wept so much and was so unhap in the first grade that she was sent to the kindergarten, where in two weeks she h so overcome her excessive timidity that she returned to the first grade of her own acc and tried to do the required work.

All these things take a great burden from the shoulders of the primary teacher.

The criticism that the kindergarten develops only the play idea in children is h heard, as those who study the kindergartner's plans realize the connected thou work behind their play activities.

Another frequent criticism, that the freedom of the kindergarten (especially t freedom of speech) makes the first-grade discipline more difficult, will probably s be untenable, as this year the kindergartners are teaching the little folks to work their play problems in silence, hoping thus to strengthen their powers of concentrati

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The greatest disadvantage at present, to my mind, is that children can not be required to go through kindergarten. Hence, those who do are in such minority that they practically lose the advantage gained. If in a class of first-grade beginners only 25 per cent or less (as is often the case) are kindergarten children, it is obvious that they must lose time while the 75 per cent are being brought to their standard.

Mothers and fathers need to be educated to the value of the kindergarten, as many think that if a child goes a month or two in the fall or spring each and during a few good days in the winter, he is a full-fledged kindergartner, not realizing that back of the play problems given him is a carefully developed consecutive plan, of which he fails to get the benefit.

When I hear teachers decrying the kindergarten, I feel sure they either have not investigated, or have back of them a kindergarten in name only and not founded on the principle of child growth.

SOPHIE C. BECKER, principal of grammar school, Buffalo, N. Y.—For the first 6 years of my supervision of this school we had no kindergarten, while for the last 6 years we have had one, hence I feel that I can speak from a sufficient experience of both conditions.

Formerly we had to admit children to our first-grade whenever, in the opinion of the parent, they were old enough to come, so that the range in age was from 5 to 8 years.

In September and February the teacher's task was most arduous. She began the term with 40 or 50 wriggling, squirming, much-petted and spoilt babies fresh from the nursery. They were timid, tongue-tied, homesick babes, and she had to devise all sorts of interesting and at the same time profitable employments until they felt at home sufficiently to answer questions, so that she could ascertain what usable ideas or concepts they had which would furnish a basis for the beginning of the real work of the grade. She could not expect confidently that any of pedagogic value would be common to all, for, coming from 40 different homes, different environments, having different inheritances, and often speaking different tongues, she had 40 different culture-capacities to deal with. She found the contents of each mind different, with many faulty and strange ideas to correct, and by the time she had investigated and trained enough to transform a heterogeneous mass into a homogeneous class ready for the new ideas she had to offer, at least three months of the term had gone and a year's energy and invention had been expended. At the end of the year the older and brighter ones were ready for the second grade, but a considerable residuum was left to repeat a portion of the work.

Since we have had the kindergarten the children enter at 4 or 5 and are graded as first or second year pupils according to their degree of development. The first-grade teacher now receives 40 little workers who have learned to control their desires, their tempers, their muscles, their voices, their attention; who can take and carry out a direction; who have had all their special senses trained; who have been taught to observe, compare, think, and express their thought in fair English. They have more than one mode of expression, namely, action, painting, cutting, modeling. They know form and color; they have a sense of rhythm and some of tones, and a usable collection of concepts for the immediate work of first grade in number, nature study, literature, and ethics.

No time is lost in first grade getting ready. Work begins at once. Many children are ready for the second grade at the end of six or seven months. Only those who have lost time through illness or have a mental defect are left behind.

The first-grade teacher finds her work far more satisfactory; the parent who has had one child trained in the kindergarten would not forego the privilege for the rest of her children. We are frequently thanked for the home effect of the kindergarten training. The courtesy, helpfulness, orderliness, and general resourcefulness of the little ones are matters of comment.

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WILL ANGIER, principal Lincoln School, San Diego, Cal.—In a good kindergarten there is an atmosphere of buoyancy, of growth, and of loving obedience, and there are large opportunities for training in sympathy and generosity, in social equality, and in self-control.

Some of the points where the kindergarten child excels the child who has missed that training are as follows:

(1) He has learned to take and to understand simple instructions from another person than his mother.

(2) He has learned to obey instructions frequently with much more willingness and celerity than given at home.

(3) He has learned a part of the great lesson of community life and is usually much less self-centered than the lone child of modern civilization.

(4) He is nearly always quicker and more deft with his fingers, because of the handwork.

(5) He is a better "mixer."

(6) He is, if from a family where a foreign language is the mother tongue, very much better equipped with the vocabulary in which he is to work.

ELLA RUTH BOYCE, director of kindergartens, Pittsburgh, Pa.—Two years ago statistics were gathered to show whether any time was gained in progress through the Pittsburgh schools because of kindergarten training. These were crude and imperfect, because of the lack of accurate records, but averaging together all we could secure, it was found that the average age of children with kindergarten training was 0.52 of a year lower than those who had not had it.

Children with kindergarten training fail to reap the full benefits of it for the following reasons:

The class having kindergarten training is in practically every case in Pittsburgh not kept as a unit, but is taught in a room with children without this training. While they do forge ahead even under these conditions, there is a great loss in that no account is made of their experiences.

There should be much more knowledge and insight on the part of both primary teacher and kindergartner as to the work, aims, and method of each other. Something is being done to this end in the Pittsburgh Training School for Teachers, where the junior courses for both elementary and kindergarten students are the same.

The kindergarten aim and method of discipline agree with all modern theory and effort in this matter and should be adopted throughout the elementary school.

The concrete work in form and number could with advantage be carried to a much greater degree of development in the elementary school. At present there is practically no advantage taken of the child's love for and ability to learn about form, color, and number.

Perhaps the greatest loss comes in the handwork where often children repeat the same work they did in kindergarten, and with much less creative effort.

In this connection I should like to quote the remark made this week by a principal to one of our kindergartners when the progress of a particular child was being discussed. She said: "I have always felt that there was too great a break between the kindergarten and the primary, but I used to blame it on the kindergarten. Now I am coming to believe it is the fault of the primary."

MARY A. LEWIS, Cambridge, Mass.—One gain observable in the children coming from the kindergarten to the first grade is that they have learned to come to school, and have also learned to be neat and punctual. The first day shows them as advanced in school ways as children from homes are in two or three months. They have also learned attention and the ability to follow directions, and they have gained considerable manual skill. Their incidental knowledge of number, color, form, and direction is also a great help. Their oral language is much in advance of that of the home children, and many of them can reproduce stories very well.

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I place the ethical teaching of the kindergarten above all else. The children learn to live with each other and to be good comrades and loyal to their school.

I would not have any of the work of the primary grades incorporated with the kindergarten program; but I would extend some of the kindergarten work into the first grade, especially where the children enter before they are 6 years of age. We have been experimenting this spring with an overflow class of 20 children who spend most of their three-hour daily session on a veranda belonging to a kind neighbor. They give 90 minutes to acquiring the school arts, 30 minutes to games in the garden, and 60 minutes to the usual kindergarten work. The results are gratifying. The children's health is much improved, and they are very happy. We hope to continue this work, with modifications, in the fall.

Could the youngest children in the first grade return for games, dances, and dramatizing under the conditions and in the larger freedom possible in the kindergarten rooms, much fatigue and nervousness now observable in the later part of the afternoon would disappear. Where the children attend two sessions each day this arrangement is possible and desirable.

ELLEN M. QUIGLEY, Troy, N. Y.—In my experience I have found that little children who have had the great privilege of being trained in kindergarten by a skillful, enthusiastic kindergartner have many advantages over those who come from even the best homes directly to first grade.

First-grade teachers experience very little difficulty in settling down the little people from a good kindergarten to do the work required in this grade. The children seem to adapt themselves to the different conditions in the primary almost from the first day.

I would suggest that a child who enters kindergarten at the age of 4 years be given kindergarten instruction. When 5 years old, if too immature or not fitted to take up primary work, he might have kindergarten instruction in the morning and primary work in the afternoon. A child who does not enter until 5 should have kindergarten training in the morning and primary work in the afternoon. Every child 6 years old should be entered as a regular first-grade pupil. I consider it a great injustice to any child to be kept in kindergarten until he is 7.

ALICE J. KILPATRICK, Philadelphia, Pa.—The following statistics are for the year beginning September 8, 1912:

	Kindergarten.		Other sources.	
	Received.	Promoted.	Received.	Promoted.
		Per cent.		*Per cent.*
Room 5	9	100	30	83
Room 2	11	100	28	82
Room 4	7	100	36	77

This shows a decided advantage on the part of kindergarten pupils. In my opinion a child is robbed of a part of its birthright when deprived of at least one year in kindergarten.

CAROLINE D. ABORN, director of kindergartens, Boston, Mass.—The kindergarten has been a part of the public-school system of the city of Boston since 1888. There are at present 124 kindergartens, which means from 1 to 5 kindergartens in connection with every school district, except two. The superintendent, Mr. Franklin B. Dyer, is an avowed advocate of the kindergarten as the first step in education; therefore, under his régime we shall expect to see even more kindergartens established in the city from time to time.

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I am in possession of over 100 letters written by the primary teachers in Boston, which they have themselves stated their opinion of the benefit of kindergarten i struction.

They state that the manual work of the kindergarten is very helpful in developi skill with the hands, ability to write and draw, and the use of other implements the schoolroom. Through the songs and stories and excursions taken by the ki dergarten children, a child gains an amount of general knowledge and becomes int ested in the world of nature, all of which helps him, when he begins to read, to int pret the printed page. Through the work with blocks, sticks, rings, etc., the chil number sense is awakened and developed, and this helps very much when he begi to work with abstract numbers. Beginnings of a love for literature are also started the kindergarten, for the children hear stories, look at pictures, and reproduce stori in such a way as to make them eager for good poetry and good prose. We prima teachers feel, in other words, that the kindergarten prepares good soil in which t grade teachers may begin to work.

WATLER C. BISHOP, principal Bache School, Philadelphia, Pa.—The stateme that kindergarten children are incessant talkers is well founded. All the games the kindergarten and much of the handwork admit of conversation that not on pleases but trains the child in the use of language. I do not see how this can be c rected without destroying one of the benefits of such training. The judgment children of this age is very rudimentary, and they can not readily distinguish wh talking is permissible and when it is not. I believe it is the duty of the first-gra teacher to train the child's judgment along this line. However, in a school th admits of two kindergartens the younger children should be in one class and t older in a second. The younger children should attempt little except songs a games and, as far as feasible, these should be carried on out of doors. More seric work could then be undertaken in the advance class and these children could be d ciplined toward the end of the kindergarten course along lines required for the wo in the first grade.

ZOE C. SHAW, Kalamazoo, Mich.—There exists in Kalamazoo a very close relatio ship between kindergarten and primary. The former has been established as a regu part of the public-school system for many years, and is one of the best organized d partments of our system.

Few children enter primary who have not had kindergarten training, so thorough convinced are the school patrons of the worth of such training.

One of the strongest features of the kindergarten and primary here is the spirit cooperation and mutual helpfulness which exists among the teachers. Prima teachers are acquainted with the plans and purposes of the kindergarten, vice ver and work in harmony, aiming to produce a continuous course of development duri the period of childhood, with no break between kindergarten and Grades I and of regular school. This has been accomplished partly by giving the preference primary teachers who have had kindergarten training and partly through cooperati supervision of the two departments, planning for joint meetings of their teache for general discussion, and for visiting each other, thus establishing good feeling a mutual helpfulness.

Circle primary rooms are an added incentive to freedom in the primary. The chi coming from kindergarten feels at home in a primary room furnished with tables a chairs and with the familiar circle for social periods. Over half of our primary roo are equipped this way, and teachers prefer these rooms.

There is much yet to be done in the way of graded activities that will help to avo "marking time" in primary. This we think can be accomplished when prima teachers recognize the strength of initiative and power of experience possessed by t kindergarten group sent on to them. This cooperative consciousness is what we a striving to attain.

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C. OPINIONS OF PRIMARY TEACHERS.

MALANIE A. SCHUTE, Cincinnati, Ohio.—During the period of 31 years that I have spent in the Avondale School in Cincinnati, I have always had a few children who had had some kindergarten training. Five years ago the kindergarten became a part of our public school system.

We are extremely fortunate in having in our school a director who is an ideal kindergartner; so my comparison can be drawn between children who have received the best kindergarten training and those less fortunate ones who missed this training altogether.

The kindergarten children show the result of systematic sense training. Their power of observation is greater. They are able to discover things for themselves and use eyes and ears. They are more free and easy in their movements, because of the games and exercises in rhythm, which have trained and developed their limbs. They use their hands better in all forms of construction work. The sense training given the kindergarten child helps him to form a clearer mental image of the idea he wishes to express; hence his work is better in all the various modes of expression, language, painting, clay modeling, etc. He is more self-reliant, helpful, unselfish, and apt to show a budding community spirit that impels him to go to the assistance of a more timid scholar. He has a better command of language, because he has had ample opportunity to express his ideas and has been encouraged to tell what he has seen or experienced. When thrown upon his own resources, during the period of busy work, he performs the tasks assigned him more intelligently. And, lastly, his life is richer because of the beautiful stories and songs he has heard in the year spent in the kindergarten.

As to "adjustment between kindergarten and lowest primary grade," it seems to me there should be a complete "dovetailing" between the kindergarten and the first grade. The games and plays should be continued in the first grade and also the free expression by means of paper cutting, painting, clay modeling, etc. The story, which has so large a place in the kindergarten, should have a large place in the lower grades, forming the basis of the lessons in reading.

The circle of the kindergarten should find a place in the first-grade also. With the introduction of movable desks the problem of sufficient room space for games and dramatization would be solved. The transition from the kindergarten to routine of the schoolroom should be so gradual that the beginning of one and ending of the other is the same. In the words of a kindergartner of wide experience:

If the kindergarten principles upon which the kindergarten practice is based are valid, they must be valid not alone on the stage of development which the kindergarten covers, but also for the other stages as well.

KATE FARRELL, St. Louis, Mo.—During the last four years my work has been with children who were receiving primary work and kindergarten training in alternate periods. This program was instituted in St. Louis by Supt. Blewett who wished to test the development of children of 6. The law regulating school age did not, until the present year, allow a child under 7 to enter school.

The adjustment between the kindergarten and the lowest primary grades would be much smoother, I believe, and the kindergarten training a much more definite and substantial value to the child in his work in the primary grades, if he were allowed to formalize his experiences in the kindergarten. By formalizing, I do not mean anything which would in any sense verge on a drilled recitation.

Without oral expression, how can we be certain that the child's mental experiences are those which Froebel and his followers suppose them to be? While the kindergarten in theory recognizes the value of oral expression, in practice much of it is imitative and dependent. Much of the symbolism is too remote from the child's actual experience to rouse in him the impulse for independent investigation. Even in nature study and mathematics a definite result is prevented by the prevailing fear of for-

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malism. The child's impulses remain undiscovered through failure to utiliz most potent means of expression—language. Self-activity, the proclaimed of the kindergarten, is not promoted in the kindergarten when it fails to reco that to formulate thought is to produce thought.

I believe that the child who is allowed, in the kindergarten, to give voice t own ideas, is much better equipped for the work in the primary grades than is the who has the experiences of the kindergarten interpreted by the teacher, perfect th the language may be.

While I am in entire sympathy with the kindergarten and fully appreciate w does for the child of from 3 to 5 years, I believe that it should, during the period 5 to 6, curtail the time given to the less valuable forms of expression in favor of the one of oral expression.

KATHERINE M. GUEST, Chicago, Ill.—The kindergarten child has a broad experience. He learns habits of observation by relating what he sees on the w and from school, in visits to parks, country, walks, etc., and nature work do the room. Through these talks and experiences he comes to have a larger sym or relationship with all life around him.

Through the trades and occupations he learns industrial life and, in a general s the history of the race; he is taught respect for labor and a love for work of all k Through music and rhythm work he gains poise, bodily control, pure tone qua and a readiness for what is to follow in the more definite first-grade work.

The well-trained kindergarten child is ready for the first-grade and needs to no adjustment in the work required of him.

DE ETTA PRICE, Fort Wayne, Ind.—The aim of the kindergarten, as I see it, to prepare children for the grades. Its aim is to meet certain needs in child life the age of 3 to 6. The activities of children in the kindergarten are but little, if related to those they encounter in the grades, with one exception—the manual The child of the kindergarten has the advantage of a fuller, happier life, but the d with which it fits or prepares him for his primary problems may be quite accu compared to the degree which her training in cooking, sewing, and dancing eighth-grade girl increases her efficiency to master algebra.

OLIVE BAKER, St. Louis, Mo.—The kindergarten needs common supervision the primary grades. The teachers of the kindergarten, in general, assume the att that the kindergarten is a separate institution from the elementary school. limit their study and interest to the one step or stage in education which they t and forget to consider it in relation to elementary, secondary, and higher educ There is great need for a wider perspective, which an interest in the general fi education will give. I do not say the kindergarten teacher should attempt to m the methods and literature of all grades, but surely she is working with a narrow ception of the educational field in which the child is growing when she has but dental acquaintance with the step or steps in the development of the child's after the kindergarten.

SARAH HOGG, Richmond, Va.—As to the adjustments that need to be made be the kindergarten and the lowest primary grades, in our school we had what we the "connecting grade." In this class some reading and phonetic work was preparatory to the reading course to be done in first grades. This, I think, is not in all kindergartens, but it has proved very helpful to my class. During the past I did more than twice the amount of reading with children who had had some of this nature than I did the term before with children who had not had this pre help.

Let me say that this is my first year with children who have had kindergarten ing. I like it, and if I could I would see that there was a good kindergarten in public school in our country.

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ALIDA L. CONOVER, Bayonne, N. J.—I find that pupils who have attended the kindergarten are more restless, less attentive, less interested in primary work, and show less application, than those who enter the grades directly; also, that they are more difficult to discipline, since they must necessarily unlearn such habits as talking and the greater freedom of action which are quite proper according to the ethics of the kindergarten, but which can not be allowed in the grade work. In some cases it is almost impossible to break these habits, especially if the pupil has attended kindergarten for more than one term.

For some years I have observed that the classes which made the most rapid progress and were more easily trained in school discipline were those in which a large percentage of the pupils had not attended the kindergarten.

I find that the pupil who has attended the kindergarten is usually somewhat more apt in all manual training work; also, in many cases, more responsive in language work.

In regard to any adjustments which might be made between the kindergarten and lowest primary grade, I would suggest that a change be made in the age at which pupils may enter the kindergarten. At present, I believe, a child may enter at the age of 4 or 4½ years and remain until the age of 6. This allows some backward or very immature pupils to remain for three or even four terms in the kindergarten.

If pupils were allowed to enter at the age of 5, remain one term, and then pass to a connecting class or to 1A it would mean less time to acquire the kindergarten habits and also would relieve the crowded conditions of these classes.

I would suggest a stricter discipline in the kindergarten.

HELEN W. TANNER, Paterson, N. J.—While the kindergarten was a wonderful advance in the education of young children, yet for many years past it has become a separate tradition and fetich. Children generally enter at too late an age for pure kindergarten work and are kept at it too long. It has been the cause of much needless waste of educational years.

In this school (Public School No. 6) children enter the kindergarten at 4 years of age. They play at reading and writing (childish scribble, etc.), which they enjoy just as much as their games, and in a surprisingly short time learn to read and write, almost unconsciously. The average age at which our children graduate has been reduced by 1½ years, largely by attending to earlier entrance and to this connection between the kindergarten and first-grade work.

NETTIE J. FREEMAN, Chicago, Ill.—In regard to the adjustments between the kindergarten and the lowest primary grade, I believe the continuance of the educative work, begun in kindergarten, is greatly hampered in primary work by the lack of suitable materials and equipment. The child feels this limitation through having experienced the joy of abundance of beautiful materials.

In kindergarten there are two teachers, each supervising an average of 25 children, while in the first primary grade one teacher takes care of an average of 45, hence the step between the freedom of kindergarten and the formal work of the first grade is too great. These conditions might be improved by either a reduction in the number of pupils or providing two teachers for each primary room.

ANNA WALDSCHMITT, Chicago Ill.—There is too great a change between six years and six years and one day. There is too great a jump. The child in primary school is confined in a seat. He is almost overcome by that fact alone. If the children could all be gathered together in front it would be all right. The teacher has one side of the room that she has to listen to; the other side is put to work. Sometimes the children can not do the work because it is too difficult, or it is too easy and the child finishes his work quickly. In the first case, the child gets discouraged. The teacher has not the time to go to the child's aid the moment he needs her assistance, as she does in the kindergarten. This child naturally loses interest and becomes lazy.

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The other child is too quick about his work. In the kindergarten the teacl help children immediately. The child who gets through with his work sits soon gets bad habits. Both of these cases stay in the grade longer than the

Children who go from the kindergarten should not have seats, at least for fiv They should have tables and chairs, as they have in the kindergarten. N can take 48 children and have tables and chairs. Why not overcome that l a cadet?

ETHEL B. FITZHUGH, Louisville, Ky.—It has been my privilege to have ha ence in a school without a kindergarten, and, more recently, in a school with I feel safe in saying that the difference in progress made by the respective very noticeable.

The habits formed in the kindergarten, the prompt obedience to signals tribution and handling of materials, save a vast amount of time for the actual and the little ex-kindergartner makes a very capable assistant to the teacl handling of those who have not had the advantage of the same training.

To me, an ideal class would be one composed of well-trained kindergarten who had been recommended for promotion by the kindergarten teacher. dergarten teacher and myself compared notes after the promotions had b at the end of the first term; and, with a very few exceptions, the failures were children who had not been considered ready to leave the kindergarten.

ANTONNETTE D. RICK, Jamestown, N. Y.—The last few weeks or even the spent in the kindergarten should be given to a course of "primary tactics," the children should do their table work without talking except when nec information, just as the primary pupils do their work at their seats.

Of course, their games, free play, and marching give them a chance to r as the various exercises and games relieve the tension in the first grade.

The kindergartens in which I have observed this plan carried out were pleasant and delightful I have ever seen; the pupils seemed in no way to by the fact that they were working quietly.

When I entered primary work after my kindergarten training there w difference in the world in the way the pupils in the different schools too grade work.

Those from the "quiet" kindergartens seemed to be ready to do "something and understood that they could not do their work well if they were constantl and watching others, while those from other kindergartens "didn't like sc cause they "had to keep still and had to work."

NELLIE WALTON FORD, St. Paul, Minn.—It has been my experience to children who come into the first-grade classes from the kindergarten posse self-control, are more mature, less timid, pay better attention, take comma intelligently, do better handwork, and have a larger vocabulary. The last is true of foreigners.

In regard to a readjustment of classes, I have long wished that a class inserted between the kindergarten and first grade, in order to avoid the which comes from promoting too young. Children who are ready to learn to write take up the work with avidity and profit, while a large proportion a and permanently injured by having subjects forced upon them before the are sufficiently developed.

I do not think the more brilliant children would suffer by the change, as often weak in handwork. They would gain in self-control and poise what w the mere acquisition of facts.

I should plan to give one period a day to paper construction or clay mode to pencil drawing or free-hand cutting, one to water-color work, varied by t of tablets, as an introduction to original design. This work might be repro

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A. "WHAT FUN CLAY IS!"

Clay for modeling is a universal favorite; it leads to growth in power of expression.

B. "ONCE UPON A TIME."

Good stories are to a child what good books are to a grown-up.

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A. "MINE IS FINISHED."

his set of blocks requires much skill to fit together and balance the brick-shaped pieces.

B. "WE ARE GOING TO BUILD HOUSES."

By such materials the child's instinct to take things apart and recombine them is guided into conscious skill.

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tracing about the forms and coloring with crayon, but I think design in water color painted in mass is too difficult for 6-year-old children.

I would have story-telling, with reproduction by the children, orally and in many cases by dramatization. There should also be oral descriptions of toys, flowers, birds, and objects taken up in nature study, and there could be talks about the weather and change of seasons.

Singing of joyous songs should have a place, but there should be no technical study of music.

Arm movements at the blackboard should be given as a preparation for writing and proper development of the muscles. While it is quite possible for children of 3 to write, who wants them to do it?

There should be counting exercises of great variety with tracing and coloring of geometric and other forms in groups, for quick recognition, and paper cutting and pasting, for the impression of the same should form a part of the work.

I would teach short selections of beautiful poetry and tell a few stories, simply for the pleasure they give, with no effort to have them reproduced. Frequent periods for relaxation, fresh air, and physical culture, with the simplest instruction in hygiene, should be included. Daily phonic drills should also form part of the course.

I would not allow any but an enthusiastic, sincere, experienced teacher to touch this work and, when appointed, I would allow her great freedom, with no restrictions in regard to the length or arrangement of periods.

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IV. ABSTRACTS OF PAPERS READ AT THE MEETING OF T INTERNATIONAL KINDERGARTEN UNION, WASHINGT D. C., APRIL-MAY, 1913.

THE STANDARDIZING OF KINDERGARTEN TRAINING.

NINA C. VAN DEWALKER, Milwaukee, Wis.

The question of standardization of kindergarten training is one of great import to the kindergarten movement. It is only as a part of the school system that kindergarten can realize the hopes of its founder, but in the estimation of man has not yet justified its place there. Statistics show an encouraging increase in number of public kindergartens during the past decade, but an increase by no m commensurate with the advance made in general education during that period. agencies which the kindergarten employs—the song, the story, creative self-expres and directed play—are in high favor, but the value of the kindergarten itself is questioned. In the judgment of the school, the causes for this lie in the char of the training which kindergartners have received. By the same judgment se efforts need to be made to raise the standard of that training, if the kindergarten h to retain the place it has gained there.

That standards of kindergarten training have risen immeasurably since the days is evident. It is a matter of pride that the best training schools are now of lege rank in their entrance requirements, that the course is not less than two y in length, and that many offer three and four year courses. But desirable as it have an increasing number of thoroughly trained kindergartners graduated year, the standard of efficiency among kindergartners in general will not be ciently raised if the majority of training schools send out in the meantime large cl of those who are not up to the standard that present-day conditions demand raising of the general standard—in fact, a standardizing of the training cours therefore necessary.

A standard, however, is determined by the end in view, and kindergarten trai like any other, might be judged good from one standpoint and poor from anot Much of the friction between the kindergarten and the school comes from this that each has its own distinct aim and judges the other by that aim only. The mate which the school places upon the kindergarten and her training is not, there necessarily the true one. If the kindergarten is to perform its service for the chil of the country, however, and exert the influence upon the school that it should e it can do so only in and through the school and to the extent that it recognizes i and the school alike as parts of a system in which each must work in harmony common purpose. In this entering into the purpose of the school as a whole, kindergarten need not sacrifice its own aims. On the contrary, it is only as it sees i in this larger relation that it can realize their full significance. It can not per its part, however, if its work is judged inferior to that of the school. The fact it is so judged, by some at least, is cause for action on the part of training teac The position taken in this paper, therefore, is that the standard of kindergarten t ing needs raising, because in the estimation of the school the kindergarten does not

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perform its own service adequately, and does not, therefore, lend the aid it should in furthering the purpose of the school as a whole.

There are reasons why the attitude of the school toward the kindergarten is especially critical at the present time. It is evident that there has been a great awakening of educational interest in the last half-dozen years. This is due in part to the scientific investigation of schools and school problems which has been in progress during that period. This investigation has made unexpected revelations in many directions. It has shown the elementary school to be particularly weak, as scores of children are retarded each year in passing from grade to grade. Fifty per cent drop out before the sixth grade is reached; and those who remain to finish are "misfits," as they are not prepared to enter any phase of practical life. The realization that the school was not producing socially efficient individuals, and was, therefore, itself lacking in social efficiency was the first step toward a new order of things, an order in which efficiency is the watch word. It is to secure greater efficiency that the school concerns itself with the children's health; it is because the influences of the street do not make for efficiency that playgrounds and social centers are established; and it is to cultivate the efficiency needed in practical life that trade schools and continuation schools are being adopted.

Because the school seeks to develop efficiency, new demands are being made upon the teacher. Each subject, in fact every exercise, is expected to contribute to this end. In the effort to get more efficient teaching, it has become evident that subjects must be taught in a close enough relation to life to grip the children's interest. Because of their appeal to children's interest, music, drawing, and the arts of expression in general have assumed a new value. The attempt to educate for efficiency has, therefore, brought about many improvements in school work and methods. It has shown the value of creative self-expression—the basic principle of the kindergarten—as a means of developing efficiency. It is because of this new spirit that the kindergarten is asked to justify its place in the school system as it never has before, and that the kindergartner is called to account on new lines. Whenever she can show evidence of real growth on the part of the children, her work receives an appreciation never before accorded it. If she lacks the insight into the child's development and the principles upon which present-day education is based, however, as she too often does, she will be unable to direct the children's work in kindergarten, so that development along the line of grade work will result from it. Her work may have value, but her unfamiliarity with the ideals of the school makes it difficult for her to translate her kindergarten ideals over into the ideals of the school and make them bear upon its work. It is because the superintendent does not see the results he hoped for that he hesitates to urge the adoption of the kindergarten when he is considering the agencies that will increase the school's efficiency. Whatever the justice of the criticism which he passes upon the kindergartner and her work, she can not afford to let the kindergarten fall below any standard which the school may set. If the kindergartner's acquaintance with the aims and methods of general education is inadequate, as the superintendent alleges; if she lacks the needed preparation in drawing, music, story-telling, and other school arts; and if she is not as open to suggestion and criticism as she should be, should not the training teachers of the country see that these shortcomings are remedied? The formulation of an ideal course of kindergarten training is doubtless necessary, but it is less imperative than the improvement of courses as they are to meet the conditions that require them to be different.

The work of a kindergarten training school must fall into several well-marked lines. To meet the demands of present-day education, these should be as follows:

1. A study of the child's development, accompanied or followed by a course in physiology and psychology.

2. A study of the ideals and methods by which the kindergarten seeks to further that development, by means of the literature of the kindergarten and the instrumentalities which it employs.

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3. A study of the subjects with which the kindergartner must be familiar to do good work in kindergarten and to prepare the children for the grades, such as music, art, literature, and nature study.

4. Practice teaching to show the future kindergartner's grasp of the kindergarten principles and her power of applying them.

5. A study of the kindergarten in its larger relations (*a*) to the work of the grades and (*b*) to the mothers of the children and the community of which it is a part.

6. A study of subjects needed for the students' own development, such as composition, expression, public speaking, and domestic science.

That these several lines of work must be included in the courses of all training schools that are ranked as standard is evident. That they can not be successfully undertaken without a high-school education as a foundation, nor successfully mastered in less than two years, is equally evident. In these two respects, most training schools have already become standardized. A two years' course with a high-school entrance requirement is not necessarily a strong course, however, as the organization of the course may be such as to make strong work impossible. The obstacle to the organization needed to insure strength is the disproportionate amount of time frequently given to practice teaching. If two years are given to this, the course can not be strong, since the time needed for the instructional work is too short to make it so. If one year of practice is made the standard, there is time for the instruction in child study and psychology that the kindergartner needs to make her work intelligent and vital; there is time for a study of the kindergarten instrumentalities and their purpose in the child's development; and there is time for the instruction in art and music, and perhaps also in literature and nature study, that the student needs in order to do successful practice teaching and the kind of work after graduation that the school wishes done. Unless the time given to these subjects in the kindergarten training school is materially increased, the kindergartner will continue to be at a disadvantage as compared with the grade teacher who has received her training in a good normal school. The instruction given in psychology, music, drawing, literature, and nature study covers at least a semester of daily recitations. In view of the limited instruction given in many kindergarten training schools, it is not surprising that the kindergartner's work in these respects should have merited criticism. In these it is not a matter of interpretation, but of fact, that the kindergartner's preparation is inadequate to the demands of the school, and kindergarten training needs to be standardized up to the level of the good normal school.

With a high-school entrance requirement, a two-year course, a year of practice teaching, and at least a semester's instruction in music, art, psychology, literature and nature study, the kindergarten course would possess elements of strength that it now too often lacks. The most important phases of its work remain to be considered however. These are the courses in kindergarten instruction proper, and those that relate the work of the kindergarten to that of the school as a whole. Do these need strengthening and standardizing? To the fact that the second needs it, every school principal will bear testimony. But surely the kindergarten instruction itself can not need it. In some respects this needs it most of all, since it often violates the very principles which the kindergarten advocates. The purpose of the kindergarten is to develop creative self-activity on the part of the children. To do this, it directs the children's self-expression in such a way that they ultimately discover for themselves that there are principles by which that expression must be guided. To impose these principles upon them by an outside authority would be a violation of Froebel's dictum that education must not be arbitrary, categorical, and interfering. The development of creative self-activity on the part of the children in the kindergarten has been fairly successful. Has the path that leads to creativeness in the children been followed in the kindergarten instruction of students in the kindergarten course? Are students

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led to a study of the kindergarten instrumentalities through their own observation of children's natural play material? No, they are given these as objects to be accepted upon Froebel's authority. Do they reach the conclusions that Froebel reached as to the methods of the kindergarten by any study of children's natural procedure in play? No; they are taught these upon an authority that has no relation to their own experience. But are these methods, which are all too common in the kindergarten instruction to students in training, the methods which Froebel used and approved of? Not so do I read the story of his work. The time allowed for this paper is too brief to permit more than the briefest sketch of a course that seems to me to accord with Froebel's own method—a course which is based upon the developing life of the child and which traces his varied activities in their natural evolution. From such a course the kindergarten instrumentalities would appear to the student as the natural outgrowth of the children's play needs, but far better than any they could themselves have devised; and the principles and methods of the kindergarten, those underlying children's normal play, but far in advance of any that even the individual kindergartner would be able to formulate. In such a course, the means to the child's development—the games, gifts, and occupations—would be seen in their natural relation to the educational ends sought, and the different phases of the kindergarten instruction would fall into their true places in relation to the others. Such a course should be followed by a study of Froebel's own works, for the purpose of leading students to his general world view—that which determines his ultimate ends and gives his doctrines their high educational and spiritual significance. Students so taught would recognize the value of authority, but would not be obliged to lean upon it as their only support, as those taught by the method of authority are obliged to do. They would get a clearer view of Froebel's message, since they would see it written in the nature of the developing child and not merely in the books that bear his name. They would, therefore, illustrate the truth and value of Froebel's doctrine of creativeness in themselves, and would have the poise and power to adapt themselves to new conditions that they now too frequently lack. In consequence, there would be little or no occasion for the criticisms now too often made.

If the kindergartner-to-be has been trained in the way suggested, the instruction that she needs to gain an insight into the work and methods of the grades will not be difficult. This should be standardized as to amount and quality, however, and given by some one in grade work or its supervision, so that students may become familiar with the attitude of grade teachers and the school in general. The instruction should include a course in general pedagogy, from which students will gain a knowledge of the aims of the school, its curriculum, the instructional processes—teaching, testing, and training, and the principles that underlie these. It should include also a course in methods of teaching the different subjects, and would necessarily occupy a semester of time. Some work in the history of education is also needed to give students a conception of the educational movement of which the kindergarten and present-day school work are the outcome.

There is still another respect in which the work of the kindergarten training school needs standardizing, and that is the method of estimating the amount of work done. A college course estimates this in terms of units, a unit being an amount of work that covers a given amount of time and a specified number of recitations per week. A student's rank in any subject or in the course as a whole can always be easily determined by adding these units. Is there any way by which the amount and character of the work done in the kindergarten training school can be thus estimated? Those who have tried to adjust the work of a student from one institution to that of another know that there are no common standards. A year's work in a subject means one exercise a week in one school and two, three, four, or five in another. Personal questioning as to the number of weeks covered by a subject and the number of recitations per week is the only means of determining its value. In these respects, as in many

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others, the kindergarten training school has still much to learn from the college or the normal school. As yet its work has little standing among educators. The adoption of the college system of credits would be another step toward the standardization it needs to make it respected. If current discussion results in bringing some degree of order and uniformity out of the chaos of kindergarten training courses, it will have performed an important service for the kindergarten cause.

The suggestions given in this paper have grown out of present-day emergencies in the kindergarten situation, and are therefore practical rather than theoretical in their basis. They represent the "liberal" viewpoint in the main, although all those who class themselves as such might not agree to the details of organization and administration suggested. If the criticisms upon existing conditions seem severe, it should be remembered that they are but reflections of the criticisms made by those outside the kindergarten ranks. They grow out of a sincere desire to aid in bringing about the conditions that will enable the kindergarten to perform its high mission to American education.

THE KINDERGARTEN AND GENERAL EDUCATIONAL PRINCIPLES.

BERTHA BARWIS, Trenton, N. J.

Would not kindergartens be more efficient if, in the methods of procedure, teachers had more definitely in mind certain desired results which would agree with general educational principles, and if the teachers kept in mind the grade work which follows kindergarten?

Kindergartners have had four distinct methods in mind in using kindergarten material: Dictation, imitation, suggestion, free play. In using these materials (excepting free play) the desired results have been a finished product. Would not our work be more efficient if we used materials according to two methods, experimentation and problems? These are methods which have been used since the beginning of the race. Having in mind these desired aims, there results a development of initiative, judgment, power to do, stimulation of thought. If these desired results are kept in mind in using materials, the point of departure will come from the child. After the child has made his attempt, then let him see where he has failed by reference to the object he has tried to represent. We can be satisfied with a crude product so long as it satisfies the child. As for technique, this will come in time. When the desire for a better product comes, it will call for greater skill and will furnish the very best possible motive for necessary drill.

Are we as careful as we should be in keeping in mind the social aim of education, using the principle of cooperation which makes for independence, a factor so necessary in life outside of school?

Could we not make more use of our group material, thus preparing for grade work, having one group of children working entirely alone?

WHAT THE KINDERGARTEN CAN LEARN FROM MONTESSORI.

WILLIAM H. KILPATRICK, Teachers College, Columbia University.

In this discussion the Montessori system is taken to mean whatever is found in the translated book or in the approved practice in Rome.

Madam Montessori allies herself most commendably with the scientific aim and attitude as the only rule of educational faith and practice. Her practice is not so praiseworthy. In the opinion of some competent to judge, her biology is generally bad, while her psychology is not abreast of the best. Montessori has then the spirit but not the content of modern science.

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many years the proper curriculum for the young child has been much discussed. l expected some geometry and arithmetic, but little or no reading or writing. ndergarten has, as a rule, taught no reading and writing, and but little of num- geometry. Montessori, however, expects her work to culminate in the three d her apparent success has been widely discussed. In arithmetic, it may be ically stated, there is no contribution for America. Her reading method de- on the phonetic Italian language, and when separated therefrom has no new ion for us. The writing is beautiful, and may contain suggestions of value to ugh the matter is not certain.

quite another question whether the kindergarten should wish to take up the 's. There is at present no scientific basis for a final answer, but the wisdom a move is at least questionable. There is danger of deadening this tender school without books is Froebel's everlasting glory.

doctrine of liberty is the most interesting of the Montessori doctrines. Froebel ed it, but in practice we have too often had dictation instead. The kinder- has a detailed program; and the children have been directed therein by sugges- ldom by force. The freedom has been narrow, limited to the exigencies of the -made program. Montessori, on the other hand, has no such detailed pro- During the long period set aside for the use of the apparatus, the child chooses, ally ad libitum, how he will spend the time. The director keeps herself dis- in the background. Yet there is no anarchy; on the contrary, a vigorous along the proper lines.

e elements here enter, the choice of the child, social cooperation, and con- to group requirements. Froebel and Montessori evidently stress these dif- . Montessori emphasizes freedom—the child did not even march unless d to do so.

e kindergarten there is a great deal more of group activity, and consequently a certain kind of social cooperation; but the moving will is usually the teacher's, the cooperation often lacks its best element. Practically the same thing is to of the conformity. It appears, then, that the best policy would be to use the lian emphasis upon group activity, but secure it through a much freer and more neous cooperation of the children as they busy themselves in activities that more truly from themselves.

ly allied with the foregoing is the question of the adequacy of self-expression ed by the Montessori system. In fact freedom is meaningless apart from the nity for self-expression. While Montessori allows freer individual choice than l, the range of choice is much more limited. Play as such is little encouraged. icular there must be no playing with the didactic material. Games are not n evidence, and those found are inferior to those of the American kindergarten. have no place—a lamentable defect. There is little utilization of the imagi- Drawing and modeling play but small part. The freedom of the Montessori to prove most useful, must be united with the variety of the kindergarten.

guide to the freedom allowed, Madam Montessori seeks to utilize the principle education, a scheme whereby the school exercises set their own problems and all errors. The aid is admirable, but as here presented the practice is limited scope and value. So mechanical an auto education can have value only on eory of formal discipline.

aps even more than the liberty of the Montessori system has its scheme of raining found praise. An adequate discussion of this topic is not easy. There least three positions as to sense training. The first says that the sense organ can be improved so that one sees with a better eye, for example, much as one look through an improved telescope. To this theory two other groups say no. gree that the eye sees more things because fuller meanings have been attached uctions all the while optically visible.

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Which theory is correct? Has Cooper's Indian a better eye than the scholar? is it that the former has learned to note significance in the things of the forest tha out of the latter's experience? To test whether it be eye or attached meaning, b the Indian into the scholar's library. Show him these two pages, one of Fre one of Latin. What says the Indian? "They are both alike." A glance tells bookman that he sees different languages. They see and note different significar

So far theories two and three agree, and they are right as opposed to the first. now they differ. Number two says that the eye trained to discriminate in one will discriminate wherever seeing is needed. The child trained to observe l will for that reason observe the better trees and styles of houses. In other wo number two believes that the child has general powers or faculties of discrimina of observation, of memory, etc., and that any training in any of these fields train faculty so that it may be used anywhere else. To this position number three say There are no such general powers of faculties; training is specific, not general. modern psychology decides in favor of number three.

Consider now the application of these three theories. If one believed in eith the first two, he would be more concerned in the exercise of the organ or faculty in the value of the content thereby gained. He would consider that some so gymnastic exercise was the proper form of training the senses. Never mind a what was learned. The third theory, however, would ask, Is this child making tinctions that are going to prove useful? Is this child getting desirable sense quali

Where now stands Madam Montessori? "It is exactly in the repetition of the e cises that the education of the senses consists; their aim is not that the child shall k colors, forms, and the different qualities of objects, but that he refine his senses Montessori Method, page 560.

The slightest examination of the didactic apparatus, and the most casual rea of the exposition of its use, shows that Madam Montessori meant to base the useful of the apparatus predominantly upon an erroneous theory of sense training, wh of the first or second is not always clear. We accordingly reject the didactic mate and consider its professed sense training largely delusive.

In résumé and conclusion: The real individual freedom in the Montessori sch we recognize as their best achievement. If we can so utilize the extraordinary pu ity given to the working of these schools to loosen the joints of our school practice the kindergarten upward, we shall willingly acknowledge the service.

THE RELATION OF DIRECTOR AND ASSISTANT IN THE KINDER GARTEN.

JOANNA A. HANNAN, Milwaukee, Wis.

Assuming that the director and assistant have received the same training, difference between them is generally one of experience rather than of prepara The director, because of this broader experience, is usually better qualified to the lead in all those matters which call for mature judgment, such as problem administration and of direction of the work. But her attitude toward the assis should be one of helpfulness rather than of authority, one which will bring into the best efforts of the assistant. No authority should be exercised which may in way interfere with her initiative. This consideration of the development of th sistant's initiative should be uppermost in the mind of the director when she is p ning her program; hence, there should be mutual understanding between director assistant as to the aim and scope of the work.

This understanding can be effectively brought about if the director and the assis plan the work together. Each should offer suggestions, each should defer to the ot and together they should consider the value of these suggestions and their useful in accomplishing the ends for which the work is being planned. Together, too, t

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should decide the share of the work which should fall to each, so that each may do her part cheerfully and effectively.

Indeed, the effective administration of the kindergarten depends largely upon the skillful distribution and equitable division of the work. There should be no shifting of responsibility. Both director and assistant are responsible for the character of the work, and each should be assigned those duties which her talents best fit her to perform. In general, the director must take the lead, but this does not mean that the assistant should never be given the management of the kindergarten. Unless she learns early and through frequent experience to assume complete control, she can never be anything more than a tool in the hands of the director.

It should be the aim of the director, in distributing the work, not only to develop a competent assistant, but also to train her for the work of director. Nearly all assistants eventually become directors, and if their training has not been such as to fit them for this added responsibility, the director has failed signally in her duty toward the assistant. Once a week, at least, and more frequently, if possible, the assistant should take complete charge of both the administrative and executive work of the kindergarten. From time to time the assistant should take the lead in planning the work, and the director should assist rather than guide, despite her riper experience. The director will thus keep in touch with the work of the assistant, and the assistant will receive invaluable training for future responsibilities. Each will learn to sympathize with the problems and difficulties of the other, and each will be ready to loyally support the other when problems arise which demand the hearty cooperation of both.

Loyalty, indeed, is the primary virtue of an assistant, loyalty in her aims, loyalty in her effort, and loyalty in her execution of the work. There need be no subservience, indeed there should be none, since it is only by adhering strictly to her own convictions that the assistant can bring to her task the individual color without which no work can be effective. But this need not prevent her from responding loyally to the suggestions of the director, nor from acquiescing cheerfully when there is a conflict of opinion. This acquiescence, however, should never be of such a nature as to lessen her individuality. Rather, let it be clearly understood that the surrender of opinion has been made in the interests of harmony, not as the result of conviction.

THE RESPONSIBILITY OF THE ASSISTANT.

Miss Marie Pearce, Washington, D. C.

I. How much responsibility should be given the assistant?

1. She should make her own program, consulting the director. Results should be talked over with the director, to give her a grasp on the whole situation.

2. She should look over the attendance of her own class and call on absentees, in order to obtain better knowledge of children through contact with homes.

3. The order of the room should be given to the assistant to balance the clerical duties of the director: Dusting, flowers, blackboard pictures. The director should be responsible for pictures, arrangement, etc., with the help of the assistant.

4. She should share in mothers' meetings: Plans, preparation; and should attend mothers' meetings.

5. She should take charge of circle, games, and stories at times.

6. She should have a duplicate roll book for practice.

II. Should the assistant be responsible for the success of her work to the director or to the school principal? She is responsible in a measure to both.

1. Relation to supervisor. (*a*) Supervisor has whole department and must be responsible for assistant. (*b*) Has ranking and marking for promotion. (*c*) Conferences for their special work. (*d*) Supervisor may give help through the director, criticism.

2. Relation to principal. (*a*) Class affects whole school. (*b*) Principal may help through giving advice, closer contact in talking over plans, programs.

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THE GIFTS.

CAROLINE D. ABORN, Boston, Mass.

1. *Why* use the Froebelian gifts?
2. *How* use them?

1. Why? The child of 4 or 5 years has the impulse not only to be active, active for the increasing development of his own life. The gifts provide material upon which to be active in ways that must, if properly used, ten development. A child will, of course, make use of any object to satisfy the force of his own nature to experiment, to discover, to change, to make. Th garten gifts, because of their simplicity, are the best known media for these

The child has many experiences in this great chaotic world of sense im which need to be organized and interpreted. The gifts offer first of all, mat which the child can *do* something. They also offer opportunity for the sel such deeds as will help to a correct interpretation of experiences. Am things which the gifts organize and interpret, are experiences of color, of forr of number.

The gifts, especially the building gifts, are a kind of clearing house, offerir do a means of clearing the child's perceptions and ideas, and giving occasion extension.

We who use the gifts do so, not because we are immersed in the sea of nor because we superstitiously regard them as having in themselves a magic but because experience has shown them to be the best instrumentalities yet d for developing the powers of hand, head, and heart in the little child.

II. How use the gifts? Froebel's plan of organizing the child's experie make use of typical acts, typical facts, typical characters, and typical proce the activities of the kindergarten—the song, story, talks, excursions, garde care of animals—furnish the various means of carrying out this plan; the gift significant of this aim. They furnish types or concrete embodiments of standards for the child to play with, not to learn about in an abstract wa handle and play with. The child who opened his sixth gift box for the first other day and fairly shouted in his eagerness: "Oh, look! Every old kind here," gives one illustration among many of the way in which the child' stimulated to see form. A letter received by a kindergartner contained th matical words: "If yer want the stove covers yer must come and git them This being translated meant that Johnnie's eyes had been opened to see roun through the type form used in the kindergarten and, having been asked by h to bring something "round," he had asked for the stove covers, they, perha the only "round" thing in his immediate environment.

Not only do the gifts furnish types or standards which serve as valid base sification through analogy, but since every object is the product of an en should, through the use of the gifts, awaken an interest in the child's mind i energetic processes by getting him to go through the steps of some such proce

Every gift exercise should begin with self-expression—the doing, the n something which the sight of the material makes the child want to do, and suggested to him as he investigates and experiments with the material. young man not long ago, who, as a boy, was in my kindergarten. He said: still use blocks in the kindergarten?" "Oh, yes," I answered. "I remem well," he said, "and that they always spelled trains and engines to me. children, I recall, played all sorts of things with them, but I never saw any trains." (I remembered this fact, too.) Then he continued: "I am in a b but I still dream of a life in connection with trains somehow, and I hope I sh it sometime." Francis is another child who, having once made a sleigh with gift cubes, upon which he piled his fourth gift bricks for Santa Claus's pr

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content to repeat this over and over with every other material. The question is, Shall he be left free to stay on that plane, or shall we suggest ideas and the possible expression of these ideas? We can not afford to lose sight of the double purpose of the gifts, i. e.:

1. To furnish opportunity for self-expression.
2. To furnish opportunity to extend the child's world.

THE GIFTS.

LUELLA A. PALMER.

The "gifts," as Froebel formulated the series, may be considered in three ways:

1. As materials forming a complete logical unity within themselves.
2. As materials which the teacher uses to guide the children.
3. As materials which the child uses to organize his powers.

1. That there is such a logical relation between the gifts is interesting, but that it is necessary to have materials for a 5-year-old child which will show this relation is another question. The completeness of the circle which they form is entirely beyond the vaguest comprehension of a little child. The materials which should be chosen for his education are those which will present the amount and degree of logical order which he is capable of comprehending.

2. The kindergartner can use her material in two ways, by emphasizing (*a*) material or (*b*) the child.

(*a*) If she endeavors to bring to the children an idea of the connectedness of the material, she must plan a series of steps in which the children are to walk. These can be taken either by following direct dictation or by such careful limitation of the child's possible advances that only the right step can be taken.

(*b*) If the kindergartner views the gifts as means by which to develop the child's powers, the consciousness of their logical order will be present in her mind only as a goal which she hopes the children may reach some day. She will view each separate material in the light of its worth for organizing the child's present experiences and activities. This may lead her to discard some gifts and emphasize others. Such as she retains will be used for a purpose exactly in line with the child's purpose, except that she will realize which paths will lead most surely toward the later logical interpretation of the universe, and the child will only unconsciously strive toward the same result.

3. The child's experiences and activities can only be organized through a sequence which is sociological and psychological. This seems a vague statement. It means that what is provided in a child's environment and what he is encouraged to do will arrange his ideas in the best way when such things appeal to his gradually expanding nature and lead him toward acceptance of social standards. If the gifts are materials which help a child to organize his powers, they must give him such experiences and call forth such activities that his mind will be developed and in the direction that humanity has found of most worth.

The earliest gift lessons somehow left the child out of the planning except as a kind of mechanism; by supplying the power which moved the gifts in a certain way he was supposed to connect them with a cog which moved his mental machinery in the same direction. The results were to be forms of life, knowledge, and beauty as judged by the adult—that is, the results were in the material—and it was hoped that corresponding results were within the children's ideas. The methods were to be dictation first and foremost, then imitation, etc., methods were something contributed entirely by the teacher. In most kindergartens of to-day the forms made with the gifts may appear much the same as those of 50 years ago, but each one is considered in the light of the development which it has given to a certain aspect of the child's nature. A "form

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of beauty'' is not such for educational purposes unless it is evolved from a child's feeling and is the most beautiful which he can make.

Left to himself, a child might evolve relations between materials which would trivial. It is the teacher's duty to help him arrange his experiences in ways wh will be most useful. This order is best developed by providing some stimulus wh will inspire a child to outline some end and then find suggestions which are appropriate to achieve this end. The mind thus forms a habit of calling up sug tions, relevant because of some classification which is vital and then choosing t which are most significant for the occasion; this is reflective thinking or reasonin

There are three general purposes in the use of material: (1) To discover its possi ties; (2) to apply this knowledge, get a rich variety of experiences in connection it; and (3) to choose some end which will bring order and consecutiveness into t suggestions.

With these general purposes in mind, the specific purposes of different gift les might be as follows:

(1) To investigate, to discover properties of the material, its characteristics possible uses.

(2) To formulate some purpose, possibly suggested by the sight of the material, to control material to carry it out.

(3) To observe and follow another's use of material.

(4) To formulate a purpose in line with some past experience which has been vi and to control material to express it.

(5) To follow another's use of material because it is well adapted to express s idea about past experience.

(6) To discriminate between the values of the material in order to choose the best suited to express an idea.

(7) To exercise memory by repeating some form which has been made at a prev time.

(8) To express the beauty or scientific facts which he has discovered can be sh through the material.

(9) To show control of the technical naming of the material by following a dicta

(10) To cooperate with others in the use of material, by adding to some large f or by building a smaller form which is needed to express an idea which has decided upon by the group.

I can merely state dogmatically that I believe that the Froebelian building bl are the best materials that will be found to help in a child's growth; that sticks, se and colored balls are materials which a child enjoys and which can be used educa ally. There are many doubts as to the value of the rest of the gifts.

PRINCIPLES IN THE SELECTION OF STORIES FOR THE KIND GARTEN.

ANNIE E. MOORE.

We have available very few records regarding the particular stories which s suited to children of different ages. Tradition and child study both assert with phasis that children of a certain age love fairy stories, but we are helped only slig by this well-established fact. The questions of quantity and quality have still t decided. Just which fairy stories and which versions of them shall we use? Cl has largely depended either on tradition or on the individual likes and dislikes o mother or teacher. There is a certain common stock of stories which American dren are in possession of, and an examination of the titles of this list would show they are among the best of the popular folk tales. These are the old stories w satisfied the imagination and fed the spirit of the human race in its infancy and w are suited to the young of all races and all times.

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A long process of natural selection has been going on by which the coarse and brutal have largely been eliminated and those embodying universal truth and appealing to modern standards have survived. In the repeated telling and retelling these old tales have also been polished in form so that from the standpoint of perfection of finish they are well-nigh impossible to imitate.

"Cinderella," "Sleeping-Beauty," "One-eye," "Two-eyes," "Three-eyes," "Snow-white and Rose-red" fulfill perfectly all the requirements of the good short story.

One principle, such as the ethical value, must not be allowed to assert itself over all the others, such as pure enjoyment, cultivation of taste, refinement of diction, training of imagination, and developing power in thinking.

The exclusive use of stories having a clear moral lesson is sure to result in a very narrow selection and the elimination of much that is of positive value, or the very questionable practice of making over and doctoring in accordance with a certain prescription until all the original beauty and virility of the story are lost. There is evidence that many kindergartners are dominated almost exclusively by the purpose of making the story the vehicle of a moral lesson. For what other reason would one think of selecting out of the great body of folk tales such stories as "Faithful John," or "East O' the Sun and West O' the Moon"? They are long and complex, contain many objectionable features, and are anything but childlike in their main current of thought. It would be easy to mention 20 folk tales far superior in every way for children except for the lesson which these are thought to convey.

It is possible to be too exacting regarding literary beauty and finish. An over-refinement here may cause one to reject altogether certain types of stories which, while not measuring up to the standard of the classic, still appeal to children and serve to suggest desirable lines of thought and action. Many realistic stories and bits of history and biography come in this class, since we can rarely find such material in very finished or perfect form. Here the art ideal must be partially set aside in favor of something which is for the time of paramount importance.

The seasonal influence often tends to narrow and circumscribe the choice of stories in the kindergarten and to set a false valuation upon many that we use. Take a complete collection of Hans Andersen's fairy stories and search for those best suited to little children. Would any one think of selecting "The Little Match Girl" for kindergarten or first grade were it not for the fact that it is a Christmas story? Is not the version of "Thumbelina" commonly used in kindergarten, which consists of mere shreds and patches of the original, employed primarily to deepen a certain phase of thought or feeling which happens to be prominent without much regard for the peculiar values belonging to Andersen's stories? I am inclined to think that "Persephone" from among the myths is chosen chiefly for its seasonal significance, since its theme is not particularly well fitted to little children. The use of poor homemade stories is accounted for in the same way.

Information is not a legitimate element in story any more than in poetry. Nature fairy stories are as much a "fraud on the fairies" as the abuse to which Dickens referred, that of turning the old tales into temperance tracts. Nature's phenomena and processes are quite as marvelous as any fairy tale and will, if properly presented, prove quite as interesting to children, but these wonders can not be revealed by talking about them or by weaving fanciful tales about natural events.

There is a truth, deeper than scientific fact and more significant in the lives of children, contained in such a story of animal life as that of the squirrel mother and the elf, which forms a chapter in Selma Lagerlöf's The Wonderful Adventures of Nils. And does not Kipling in his whimsical and altogether delightful way answer to the entire satisfaction of young minds some of the whys and wherefores that beset them?

In the class of short realistic stories for little children few writers of real power have made any contribution. At first this fact seems unaccountable when one considers that writers of ability have not deemed it beneath them to collect, edit, and revise

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folk material for little children, and that not a few writers of genius have pro
delightful fairy stories, fairy plays, and fanciful tales. In the matter of fairy
witness the noteworthy list of comparatively recent productions: "Peter
"The Blue Bird," "The Good Little Devil," "Snow-White," "Racketty-Pa
House." Probably adult mind and child mind are much more nearly on a pl
the realm of fancy, while in the realm of the real everyday child life with its
problems and events it is almost impossible for a grown-up to get down close e
to see from the child's standpoint. Certain it is that there is a sad lack of sto
the realistic type having any claim to literary merit.

It seems very important that teachers should have a wide range of stories from
to select. In the use of stories much depends on the teacher's own taste and ten
ment, and better results are obtained where the individual has a large degree of fr
in the matter of choice.

SYMBOLIC PLAY.

HARRIET NIEL.

As a student kindergartner I had the rare privilege of being assigned by Miss
to a public kindergarten presided over by a perfect living symbol of a woma
had preserved into her then mature womanhood this childlike quality of
symbol maker, of finding life at the center of its symbolic aspects. She had
childhood's spontaneity, which was not excitement, multiplied adjectives or
latives, but literally she had kept the spirit of a tranquil while joyous oneness of
and sureness of kinship with childhood.

Her kindergarten was fresh every morning as the new day and not fagged at
when repetitions were in order. She so questioned or suggested that childr
sponded in the words of new song or game without any realized ordeal of repe
and with the zest of a new experience. Her method was akin to that by whi
normal nursery child knows, not without effort so much as by means of the
spontaneous and rewarding of efforting, his Mother Goose.

She did it all by a touch so light but irresistible that we grown assistants for
were grown, and entered with the children that enchanting realm where all n
souls from 3 to 6 are at home. Into butterfly life and bee and bird and gard
went, wholly akin to all the lives we were borrowing. Critics and investigator
near and far came and went without spoiling or changing that lively, absorbe
unself-conscious spirit. There was no overwroughtness, nor was it in the least
or sentimental kindergarten, but a realm in which personal surrender and rec
went on as unconsciously as when a group of children play alone.

There was a community spirit I have seldom seen matched. I do not rem
any assigned leaderships nor any too often appropriation of leadership by s
children. Each new game took shape more or less in Mrs. Hubbard's mind just
in the presence of the children, and they caught from her, and she from the
spirit and the form which shaped itself before our very eyes into the lasting cere
of many of our present games. I can see her evolving the spirit and the exq
flight of birds with different sets of children through successive years, and t
of it was as fresh in her the last time as the first. It was the height of the k
gartner's art as to the symbolic spirit of play. I believe the secret was largely be
she herself was a living symbol.

I believe this symbolic spirit to be in all normal childhood, refashioning fa
fancy, seeing much in little, being a whole bird because you spread simulating
feeling the whole life of every other thing which it touches only at a telling poi
touches with this creative wholeness of feeling. As the scientist from a fra
tary fin reconstructs the whole fish that was, or from a leaf the tree on which it
so does childhood, choosing its portion, forefeel life's wholeness, not content wi
unrelated fact.

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Early childhood takes the fact for what it is best worth, and sets about finding not alone its qualities and attributes, but its affiliations, its tetherings, its implications, its adaptability to other purposes than those it serves to common sense. The child's ready fancy changes chair to chariot, stick to horse, prince to frog and back again, and himself to everything in turn. No hesitations mark these early forms of his democracy, and so he is never lost but to find himself again.

Miss Martin spoke as follows on plays and games.

The subject of plays and games in the kindergarten include the following forms of physical activity:

First. Those plays in which activity for its own sake is the chief interest. These include walking, running, jumping, hopping, skipping, clapping, etc.

Second. Representative or imitative plays in which the child reproduces some form of life going on about him. In other words, these are plays in which the movement is suggested by an idea to be expressed. This class includes the gallop of the horse and the hammering of the carpenter.

Third. The singing game and folk dance of the traditional game of the kindergarten—*Oats, peas, beans.*

Fourth. Simple games of skill. This class includes all sense games, ball games, and all games involving competition.

Fifth. The dramatic game of the kindergarten.

I would like to make it perfectly clear in the beginning of this paper that this division of the subject does not imply that this is the order in which the different kinds of play shall be introduced, but these five groups include all of the forms of physical activity commonly used in our kindergarten plays.

There should be, however, a certain progressive development from these spontaneous movements of the little child to the form of the folk dance.

After the exercise of each of the various activities by itself, I would lead to the combination of these movements in a little dance form, for instance, walking and skipping, or skipping and hopping. This requires more physical and mental effort on the part of the child and leads him to see the possibilities of further combinations.

To illustrate: In a kindergarten I know the children had been working along this line of development and had reached this form in which we walked forward eight steps, then skipped eight steps, etc. The first variation added was that of walking eight steps, then standing still and counting eight, repeating this figure throughout the play. The next one was that of standing still and clapping, then walking forward. To quote the particular child: "We should walk in the walking eight steps, stand still in the skipping eight steps and clap, and then do it all over again." This in turn led to walking and skipping, clapping as we skipped. This latter figure was more elaborate and required a good deal of control—both physical and mental—in order to be able to change at the right time and to make the changes that had been suggested. This year in this kindergarten the triangle gave the signal for the children to change—they asked later that they might count aloud without the triangle; later still the request came that the counting stop and that no teachers help. This showed a decided growth in power and the children's consciousness of it. These simple forms of activity underlie many game forms.

These simple plays are of interest to the children for three reasons:

First. They make use of a pleasurable activity common to the group.

Second. They involve the element of contrast.

Third. They allow for much repetition of the original and contrasting movements.

Since we find these simple activities the basis of most games and folk dances, it seems wise to use them in the kindergarten before the children have gained sufficient control to follow a variety of figures or sing and play the more formal games.

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In the second group of games we find the same simple forms of activi the movement is dominated by the idea. We walk on tiptoe because we are br we take long steps because we are playing that we are giants, we take short r steps because we are fairies. The music often leads to a better movement, for in the piano suggests a soldier play, the beating of a drum or blowing of a horn. gests the sound in the distance, which becomes louder as the soldiers draw nea dies away as the soldiers walk away.

Some of these movements may be illustrative of a song, as the rocking of a the swaying of the pendulum, the rap-a-tap-tap of the shoemaker's hammer, strong, steady swing of the blacksmith's hammer. All provide good arm an exercise and are made spontaneously by the children because of their interest i subjects and of the distinctly rhythmic character of the movement itself. I find the same opportunity for the development of the children's experimentati spontaneous expression into the permanent game form.

In these plays the child should be asked to represent only those objects and ties which he would naturally represent in this way and which are near enough own experience so that he may give them a true representation. The majo them are too difficult for the following reasons:

First. Little children under 6 years of age do not possess sufficient control and play at the same time, their interest is in one activity at a time, and as m tivity is of greater interest at this period, the song suffers and the result is a the teacher or possibly a quartette by typical kindergarten children.

Second. The figures require such careful and precise movements that the spontaneity of the dance is lost. It would seem to me, therefore, that the gre of opportunity for the kindergartner lies in original work—by this I mean the opment and organization of simple dance forms from the children's spon response to music and to suggested ideas. Often the form of the traditiona may be retained with a change of content.

In the games of skill we include all sense games, all games with balls, ball bo and rolling at a target in the middle—all of the games testing the strength of t dren such as the racing games, throwing of bean bags and balls, jumping ov or hurdles, hiding games, etc. Here we have the opportunity to give the c more vigorous physical exercise. Many of these games demand more space in to play than the kindergarten room affords. This means we must play more doors and give the children the benefit of the fresh air as well as the splend physical movement which comes in their out-of-door play.

The dramatic play of the kindergarten is representative in character but has the dramatic quality of several situations in it, leading to a climax. In playi we have the mothers represented as desiring food—they go to the store, bu return home to prepare the dinner. If we are playing about the blacksmith, him at work at his forge. The driver drives in to have his horse shod. The put on and the driver hurries away to his work.

In closing, I would like to urge particularly the following points:

First. That our plays and games be more simply organized.

Second. That the children have a part in this organization by means of th expression and suggestion.

Third. That the teacher see to it that the children play more vigorous gam of doors—in an empty room or gymnasium where there would be space for he life-giving physical exercise.

Some simple apparatus would doubtless aid in this and I believe the time is when the right forms for young children will be devised and used more co than at present.

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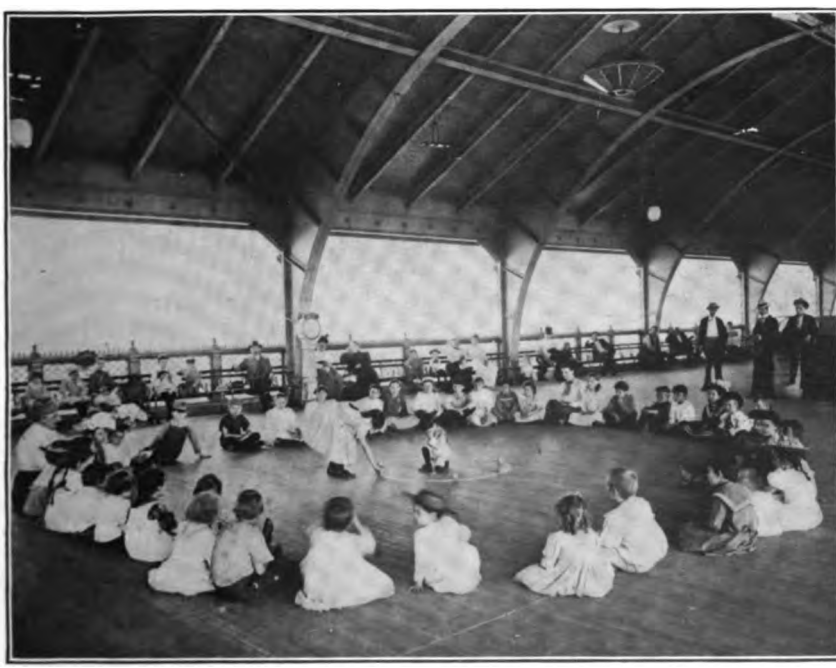
A. "LET US PLAY HOUSE."

This shows a period of play with dolls, toys, etc., not directed by a teacher, but self-directed by the children.



B. "GUESS WHAT I AM TOUCHING."

How a New York recreation pier is utilized for a kindergarten.

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Educational exchange, Birmingham, Ala.
Educational review, Columbia university, New York, N. Y.
Educator-journal, 403 Newton Claypool building, Indianapolis, Ind.
Elementary school teacher, University of Chicago press, Chicago, Ill.
Forum, 249 W. 13th street, New York, N. Y.
Journal of pedagogy, Syracuse, N. Y.
Kindergarten-primary magazine, Manistee, Mich.
Kindergarten review, Springfield, Mass.
Outlook, 287 4th Avenue, New York, N. Y.
Pedagogical seminary, Worcester, Mass.
Southern workman, Hampton normal and agricultural institute, Hampton, Va.
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1906.

†No. 1. Education bill of 1906 for England and Wales as it passed the House of Commons. Anna T. Smith.
*No. 2. German views of American education, with particular reference to industrial development. William N. Hailmann. 10 cts.
*No. 3. State school systems: Legislation and judicial decisions relating to public education, Oct. 1, 1904, to Oct. 1, 1906. Edward C. Elliott. 15 cts.

1907.

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†No. 4. The elimination of pupils from school. Edward L. Thorndike.

1908.

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1909.

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1910.

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†No. 6. Statistics of State universities and other institutions of higher education partially supported by the State, 1909-10.

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1911.

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Baltimore. 10 cts.
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†No. 8. Peace day. Fannie Fern Andrews. [Later publication, 1913, No. 12.
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Goldziher. 10 cts.
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the State. 1912.

1913.

No. 1. Monthly record of current educational publications, January, 1913.
*No. 2. Training courses for rural teachers. A. C. Monahan and R. H. Wright. 5 cts.
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*No. 6. Agricultural instruction in high schools. C. H. Robison and F. B. Jenks. 10 cts.

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*No. 7. College entrance requirements. Clarence D. Kingsley. 15 cts.
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†No. 21. Monthly record of current educational publications, June, 1913.
No. 22. Bibliography of industrial, vocational, and trade education.
*No. 23. The Georgia Club at the State Normal School, Athens, Ga., for the study of rural sociology. E. C. Branson. 10 cts.
*No. 24. A comparison of public education in Germany and in the United States. Georg Kerschensteiner. 5 cts.
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*No. 40. The reorganized school playground. Henry S. Curtis. 10 cts.
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No. 42. An experimental rural school at Winthrop College. H. S. Browne.
*No. 43. Agriculture and rural-life day; material for its observance. Eugene C. Brooks. 10 cts.
*No. 44. Organized health work in schools. E. B. Hoag. 10 cts.
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No. 46. Educational directory, 1913.
*No. 47. Teaching material in Government publications. F. K. Noyes. 10 cts.
No. 48. School hygiene. W. Carson Ryan, jr.
No. 49. The Farragut School, a Tennessee country-life high school. A. C. Monahan and Adams Phillips
No. 50. The Fitchburg plan of cooperative industrial education. M. R. McCann.
No. 51. Education of the immigrant.
No. 52. Sanitary schoolhouses. Legal requirements in Indiana and Ohio.
No. 53. Monthly record of current educational publications, December, 1913.
No. 54. Consular reports on industrial education in Germany.
No. 55. Legislation and judicial decisions relating to education, October 1, 1909, to October 1, 1912, James C. Boykin and William R. Hood.
No. 56. Some suggestive features of the Swiss school system. William Knox Tate.
No. 57. Elementary education in England, with special reference to London, Liverpool, and Manchester. I. L. Kandel.
No. 58. Educational system of rural Denmark. Harold W. Foght.
No. 59. Bibliography of education for 1910–11.
No. 60. Statistics of State universities and other institutions of higher education partially supported by the State, 1912–13.

1914.

No. 1. Monthly record of current educational publications, January, 1914.
No. 2. Compulsory school attendance.
No. 3. Monthly record of current educational publications, February, 1914.
No. 4. The school and the start in life. Meyer Bloomfield.
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MONTHLY RECORD OF CURRENT EDUCATIONAL PUBLICATIONS.

CONTENTS.—Introductory notes—Publications of associations—Educational history—Fichte anniversary—Current educational conditions—Pedagogics and didactics—Educational psychology, Child study—Special methods of instruction—Special subjects of curriculum—Kindergarten and primary school—Rural education—Secondary education—Teachers: Training and professional status—Higher education—School administration—School management—School hygiene and sanitation—Sex hygiene—Physical training—Social aspects of education—Child welfare—Moral education—Religious education—Manual and vocational training—Vocational guidance—Home economics—Commercial education—Professional education—Education of women—Blind and deaf—Education extension—Laboratories and museums—Libraries and reading—Bureau of Education: Recent publications—Periodicals indexed in this number—Bulletin of the Bureau of Education.

INTRODUCTORY NOTES.

The following is a representative selection of noteworthy books and articles listed in this bulletin, the numbers in parentheses referring to the numbers of the full entries:

National education association, Journal of proceedings and addresses, 1913 (177); Eliot, Observations in China and Japan (191); Vermont educational commission, Report, complete (199); Emerson, Evolution of the educational ideal (209); Maxwell, On a certain arrogance in educational theorists (212); Bailey, Art education (224); Cubberley, Rural life and education (253); Tombo, University registration statistics (289); New York City, Committee on school inquiry, Report (300); Terman, Hygiene of the school child (315); Coffin, The socialized conscience (331); Mansbridge, University tutorial classes (377).

Of the publications listed, only those named in the section headed "Bureau of Education: Recent publications" are available for free distribution by this office. All others may ordinarily be obtained from their respective publishers, either directly or through a dealer, or in the case of an association publication, from the secretary of the issuing organization. A list of periodicals indexed, with places of publication, may be found at the end of this bulletin.

Books, pamphlets, etc., intended for inclusion in this record should be sent to the library of the Bureau of Education, Washington, D. C.

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, September 29, 1913.

SIR: For a large portion of the children of the United States vocational education must mean education in agriculture and the arts of life on the farm. In recognition of this fact, agriculture is now taught in some way and to some extent in hundreds of public high schools and in the lower schools of many of the States. Possibly the greatest difficulty in teaching this subject is that of making it sufficiently concrete and practical. Too often the teaching begins and ends with the assignment and recitation of lessons from the pages of a textbook. To make the teaching effective each lesson must follow the necessary pedagogical order from concrete experience through interpretation and generalization back to concrete practical application. The pupil must become an intelligent worker and director of his own work and must learn not merely by looking on and listening, but by intelligent participation. The "Home-project plan" worked out in Massachusetts within the last few years and now applied in the State-aided schools of that State makes such intelligent participation possible. By requiring boys to do productive work as a means of instruction, it enables many boys to continue their studies in schools who otherwise would not be able to do so. By projecting the work of the school into the home in the vital way in which it does, it enlists the interest of parents and becomes a means of their education in this subject, thus affecting quickly the work on the farms of the community. Because of the wide interest in this subject, I recommend that the accompanying manuscript, prepared by R. W. Stimson, be published as a bulletin of the Bureau of Education. The report by William T. Bawden on the Types of Massachusetts Agricultural Schools, printed as an appendix, was jointly agreed upon by Mr. Bawden and L. S. Hawkins, L. H. Dennis, and L. H. Carris, of the State Departments of Education of New York, Pennsylvania, and New Jersey, respectively.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

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THE MASSACHUSETTS HOME-PROJECT PLAN OF VOCATIONAL AGRICULTURAL EDUCATION.

Chapter I.

VOCATIONAL AGRICULTURAL EDUCATION.

1. ELEMENTS NECESSARY TO SUCCESS.

Agricultural education as a phase of vocational education is that form of vocational training which fits for the occupations connected with the tillage of the soil, the care of domestic animals, forestry, and other wage-earning or productive work on the farm. Vocational agricultural education is, thus, one phase of effort toward conserving the valuable years of youth for the best uses of both society and the individual.

There is now a general movement throughout our country for agricultural education of secondary grade. There are probably not fewer than 500 secondary schools in which agriculture is now seriously taught. The training varies from the study of an agricultural textbook in the hands of the general teacher, who does not bring to her task any special training, to the out-and-out vocational school, where the teachers are specialists in agriculture.

(1) **Profitable production the test of efficient training.**—Productive work of a high order of efficiency is coming to be considered the real test of all systems of vocational education of secondary grade. Particularly in vocational agricultural education it is coming to be accepted that the training must be such as to develop both skill and managerial ability. The competent farmer must be not only expert in the varied technique of his calling, but also a sound and progressive business manager.

(2) **Spectator versus participant.**—Neither skill nor business ability can be learned from books alone, nor merely from observation of the work and management of others. Both require active participation during the learning period in productive farming operations of real economic or commercial importance. The masterful constructive imagination may accomplish much for him who possesses it, and for his needs books and observation may finally result in vocational efficiency. The difficulty is that such powerful

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imagination is so rare as to constitute him who has it a ge
removed from the common run of boys 14 to 18 or 20 yea
who live on farms, who expect to follow farming for a liv
whose training is not likely to extend beyond that afforde
vocational agricultural school.

(3) **Danger—Too much reflection, not enough ac**
general, if there is a defect in the large agricultural schoo
boys must leave home in large numbers to attend, and
order to secure adequate attendance to justify their co
apparently limit their training to six or eight fall and winte
it is the defect of putting too great reliance upon books and
tion, to the exclusion during the intensive learning periods
participation in the type or types of productive farming
intend to follow after graduation. Too great, one may al
in the cases of many of the boys fatal, reliance is put on th
of the students once well grounded in sound theory at the
put that theory into successful practice on their own farms,
unaided. Even if the large school undertook to put its p
equipment to the strictest possible productive farming u
profitable commercial character, and to induct its student
aims and to school them in its methods, its efforts would
than likely to break down through sheer weight of numbers.
farms at present can hardly be claimed to be thoroughgo
mercial farming concerns. The most flattering school phot
where the aims of the school are most emphatically practic
by far too few actual participants and by far too many sp
To see a thing done, however good the demonstration, is n
it oneself. To participate in the carrying out of an e
planned and ordered by another—by even an agricultur
instructor—may leave one little better than a gang labor
pittance paid per hour, where any pay at all is given, can ha
an incentive to keen interest and alert action, be considered
rable to the reward the student might hope to realize from
pendent enterprise planned and executed by himself and w
his own profit or that of his family. It must be feared that,
excellent may be its work in selected demonstrations and i
really valuable experiments, school farming must, from a
commercial point of view, always remain more or less
Perhaps the best use to which an agricultural school, large
can puts its own land or equipment is that of demonstratio
schools appear to have adopted this view. It is not clear, h
that any considerable number have adopted methods of trai
culated to overcome their defects as agencies for graduating
thoroughly trained in the practice as well as theory of
farming.

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Startling and stupendous problem.—The problem, then, of providing for actual participation, both as manager and as worker, in productive farming, simultaneously with his classroom instruction, on the part of the boy in the agricultural school, may fairly be looked upon as the most startling and stupendous problem in the great field of vocational education. How shall it be solved?

2. THE MASSACHUSETTS HOME-PROJECT PLAN.

Massachusetts has developed a plan for the solution of this problem. This plan was fully set forth in the report submitted to the legislature in January, 1911, by the Massachusetts Board of Education. The legislature has provided State aid for carrying this plan into effect. A vocational agricultural school may be established by any town or city, or by any group of towns or cities which may voluntarily form themselves into a district for this purpose. Evening school classes in agriculture may be established by any school committee. The State has not been definitely divided into districts by the legislature, but certain counties have been authorized to maintain agricultural schools.

Provided an agricultural school, day or evening, large or small, taught by one teacher or more, with or without school land and live stock, with training extending over two, three, or four years, a school in general agriculture, or in such specialized production as market gardening—provided an agricultural school is approved by the Massachusetts Board of Education as to "organization, control, location, equipment, courses of study, qualifications of teachers, methods of instruction, conditions of admission and employment of pupils, and expenditure of money," the community, voluntary district, or county maintaining it is entitled to reimbursement from the treasury of the State to the extent of one-half the amount expended for maintaining the school from funds raised by local taxation. The State in agricultural as in industrial education contributes nothing toward the initial cost of land, buildings, or equipment.

Vocational agricultural departments may be established in selected high schools. The agriculture must be taught by a specially qualified teacher who gives his attention exclusively to agriculture. His vacation must be taken during the winter months, usually December, January, and February. He must continue his work throughout the summer. Little stress is laid on land or operations at the schoolhouse. Every possible stress is laid on the utilization of the land and equipment at the homes of the pupils; and it is the instructor's duty during the summer to supervise work prepared for in the agricultural classes, from seed time to the securing of the harvest. In the cases of such departments, the State reimburses the communities

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maintaining them to the extent of two-thirds of the sala
agricultural instructor.

(1) **Part-time work in agriculture.**—A fundamental featu
Massachusetts plan is embodied in what has been termed "
work in agriculture." The term "part-time work" is a d
expression brought over from current discussion of certain
industrial training, for use in unfolding the possibilities of
type of training in the field of agricultural education.
work in industrial education means that the student spend
the time required for his training in the shop or manufacturi
lishment, and part of the time at the school building, both s
shop work, however, being intimately related and suppl
to each other. Part-time work as applied to agricultural
means that the student must spend part of the time requir
education in productive farm work, preferably at home,
of his time at the school, the farm work and school stu
closely correlated by the school at points selected from seasc
son or from year to year, and the farm work being given th
possible educational value by competent school supervisior

(2) **Economy, efficiency, adaptability.**—The part-time w
reduces the cost of agricultural training of secondary grad
place effective training for the farm within reach of many con
which would otherwise be unable to secure it. Fifty dep
in 50 groups of farms should cost no more than five large sch
as those found in other States. It obviates the necessity o
the boy away from home in order to secure the benefits of ag
training. The cost of living for the boy is less at home than
be at a boarding school. Parents who need the help of t
are deprived of their services during only a portion of the d
plan also is proving to be wonderfully effective. Coopera
between the school and the home farm is the most effecti
means of trying out under the conditions of individual fa
widely scattered areas, methods which have proved to be
elsewhere, as, for example, at the State Agricultural College o
ment Station. Such cooperation furnishes effective exp
means by which each boy can try out the merits of the ho
as an agency for producing profits when treated by the be
methods. The principles and methods taught by the scho
positively adapted by each boy to the economic conditio
farm on which he may spend his working days. Part-time
gives to agricultural teaching the reality of actual life as
school training can give it. Under the part-time work pla
struction is adapted to all kinds of farming prevalent in th
surrounding the centers where the work is established. The
applications of the instruction are thus subject to the obst

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tinually encountered under economic farming conditions found in any given district, just as they are also aided by all the influences in a Commonwealth which make for the improvement of farming. Moreover, in the case of vocational agricultural departments in selected high schools, if for the moment the plan fails, due to insufficient enrollment or the fault of an instructor, the instruction may be stopped, and later be resumed when the local conditions become favorable; meantime there are no expensive buildings and equipment to rust out or rot down.

(3) **Productive farming as educational projects.**—The Massachusetts plan as an educational process becomes immediately effective, because farming activities readily resolve themselves into what may be termed farming projects. A farming project is a thing to be done on a farm. The thing done may contribute some element of improvement about the farm—as constructing a concrete walk leading to the front door; planting and nurturing shade trees; making and maintaining an attractive lawn. The thing done may be of an experimental[1] nature—as the planting of an untried variety of fruit, the feeding of an untried ration, the testing of an untried spraying mixture, or the testing of one or another of much advertised roofing materials. Finally, the thing done may be of a productive nature, as the growing of a crop of clover or alfalfa; the growing of a field of potatoes; the growing of a crop of silage corn, or the production of eggs for the market. A farming project is, further, something to be done on a farm which involves a limited and definite amount of equipment, materials, and time, and which is directed toward the accomplishment of a specified and valuable result.

Finally, a farming project, as the term is here used, is a thing to be done on a farm which, in the preparation for doing it and in the carrying of it out to a successful result, involves a thoroughgoing educational process. The improvement project of constructing a concrete walk to the front door might involve a study of the nature of cement; its action on sand, gravel, and broken stone; its resistant qualities to the weather; the seasons in which it might be used; its cost as compared with other materials, such as boards, plank, tar, brick, flagging, and asphalt; the mathematical determination of proportions of sand, cement, and stone to be used; the geometrical determination of the sections into which it should be divided, and whether it should be crowned or flat; the geographical sources of the raw material and the commercial conditions for purchasing the cement. The experimental project of planting an untried variety of fruit might involve a study of the probable adaptability of the variety selected to the soil of the

[1] It is "experimental" only in the eyes of the boy or his father, for the Massachusetts instructor will encourage only such projects as have been proved elsewhere under like conditions to be feasible. To the instructor every project is a demonstration.

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farm, the climate of the locality, and the market demands within reach of the farm. The productive project of growing a crop of clover might involve a study of the various varieties of clover; the comparative adaptability of those varieties to the given field on which the crop must be grown and to the climate of the locality; the most reliable places for the purchase of seed; the best time for seeding; the best time for cutting; the best methods of curing and storing; the mathematical calculation as to the saving in cost of feeding stuffs which the crop would afford; the chemical elements it would furnish in the ration, and the beneficial chemical, biological, and mechanical effects on the soil in which it would be grown.

(4) **School projects and other farm work.**—The home-project or part-time plan of instruction, moreover, fits in nicely in its relation to the usual farm activities of the boy. The boy may help with the milking throughout his course, where the object is to get the cows milked as quickly as possible and where no records are kept. During certain months of at least one year the school should require whatever time may be necessary for keeping an accurate record in pounds and ounces of the yield of a part of the herd. This may be limited to the weighing of milk from a single cow and giving the cow credit for what she produces.

It may be part of the boy's business to assist in feeding the cows. During part of his course sufficient time should be given for weighing the ration and charging at least one cow with what it costs to keep her.

In the original routine to which he has been accustomed in milking, much or little attention may have been paid to the cleanliness of cows, utensils, or the person and clothing of the milker. During part of his time in school the boy should be given whatever time may be necessary for milking at least one cow and preserving her milk under absolutely sanitary conditions, and for sampling the milk for bacteriological tests at the school.

In the original cropping of the farm, much or little attention may have been paid to leguminous crops. During one season at least facilities should be given the pupil for growing a patch of moderate size of clover, and for observing the effect of introducing a large proportion of clover into the ration of the cow.

In the ordinary conduct of the farm much or little attention may have been paid to the selection and testing of corn for seed. But, prior to planting, one season at least, the boy should be given whatever time may be necessary for making germination tests of the corn which it is proposed to plant; also during one season the boy should be given control of a portion of the corn field for making an "ear to row" corn test, for observing the difference in yield between different ears of corn—all the corn from one ear being planted in one row, and all the corn from another ear being planted in another row.

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rdinary routine of the farm it may be that the boy is required
e poultry. During at least one year he should be given con-
least one pen of poultry, and facilities for feeding a balanced
d trap nesting individual birds for comparison of produc-
aying.

be part of the usual work of the boy to help cultivate and
e potato crop. During one season at least he should be given
or testing the value of the use of formalin for the prevention
scab and of the Bordeaux mixture for protection against
ght.

be part of the usual work of the boy to assist in the apple
During one season at least he should be given facilities for
t least one tree, spraying it, if it is at all infested by scale, of
g under it and fertilizing it. During one season, also, he
given facilities for grading and packing the fruit from at
tree and of disposing of the product with a view to securing
es for at least part of the crop. If he could be given control
of five trees, and were a fairly husky boy of 15 to 17, the
or his work and incentives to intelligent action would be so
greater.

unting the cost of farming.—An essential feature of the
ject or part-time plan of training is the consideration of cost
nts. The boy by this method learns first of all through his
rience that there can be no product without cost and no profit
xcess of receipts over all expenditures. After such an experi-
ill not be likely to undertake a new enterprise without a seri-
npt to estimate accurately his probable profit. The boy is
to the prevailing economic conditions under which the home
t yield a profit or loss at the end of each year of work. The
by which the boy becomes on a small scale a farmer or busi-
for himself gives the project which he is carrying on and the
rk in which he participates a reality not otherwise attainable.
ens measurably his interest in the work and in the related
the school, and must fix better than by any other device the
which he is receiving.

rents pledge home cooperation.—One indispensable condi-
to the establishment of the agricultural departments is that
ts of the boys who desire to take the course shall agree to
he facilities necessary for the practical carrying out at the
the boys of the teachings of the agricultural instructors, not
g in any single year, but something every year. Parents of
s who seek admission to a separate or county agricultural
ust also meet this condition. In the cases of village or city
think they desire to become farmers, either the parents, or
ols on their behalf, must provide the required facilities for

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productive farm work in connection with the phases of farming taught these boys in the classroom.

(7) **Advisory committee.**—Another condition precedent to the establishment of vocational agricultural training in any given locality is the appointment of an "advisory committee" consisting of five progressive farmers to cooperate with the agricultural instructor, or instructors, in adapting the agricultural training to the particular needs of that locality. It is considered desirable, moreover, that at least one member of this committee shall be chosen from among the parents of boys in the agricultural classes and that one shall be a farm woman.

(8) **Promising solution ofproblem.**—The home-project or part-time plan has attracted wide attention among Massachusetts educators, and its results are being watched with the greatest interest. Many now believe that home farm work, supervised by the school where conditions are at all like those in Massachusetts, might well be substituted very generally for the present methods of little work, or no work at all, of a *managerial* nature now found in connection with vocational agricultural school training; and that the project method of bringing agricultural science immediately to bear on actual farm practice, in commercial agricultural enterprises, conducted by the boys themselves on their own home farms, is a promising solution of our most pressing problem in this field of vocational training.

A. Young people respond.—This plan was first tried at Smith's Agricultural School, Northampton, Mass. Beginning with the school year 1908–9, this school, of which the writer was then director, has employed a man throughout the summer for the express purpose of assisting the boys in applying the teachings of the school in their home farm work. This man goes from farm to farm, with authority over specific operations. The approach is very modest. It is through the boy. But the work is done on the father's farm, and under the father's eyes. The father may himself follow the methods taught by the school or department in his own larger scaled operations, and not a few of the fathers of the boys are now doing this. The efforts of the supervising instructors, however, are primarily for the assistance of the boys. If the instructors are scrupulously careful to avoid the slightest appearance of interference with the operations of the fathers, they are no less insistent upon the right of their pupils to follow the methods learned at school in the execution of their home projects. This method immediately appeals to the motor instincts and activities of boys of secondary-school age. The success of boys in the corn growing clubs in many States shows that boys instantly respond to help at home. A school-boy of 16 at a recent Massachusetts corn show won the sweepstakes against all comers, including the sweepstakes winner of the previous year at the big New

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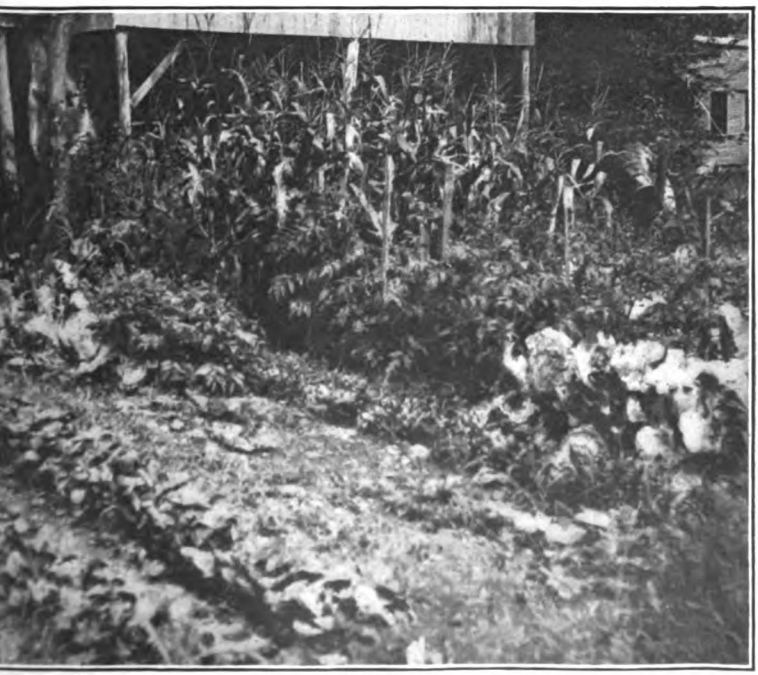
. A NORTH EASTON BOY'S BACK YARD BEFORE HE BEGAN STUDYING AGRICULTURE.



HE SAME BOY'S BACK YARD AFTER HE BEGAN STUDYING AGRICULTURE.

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England corn show, for the best single ear of corn and also the best collection of 10 ears. He had been given seed by the former winner, and had been told and shown out of school hours what to do, and when and how to do it on his father's land. The man who helped him said "That boy has pumped me all summer." Most boys, like most men, learn best by being told and shown on the field of action. Moreover, this sort of response, by which the pupil, and not the teacher, does most of the "pumping," is not only a delightful school experience, but it is, also, counted upon as a fundamental educational factor of the Massachusetts home project plan.

B. Earning and learning.—This method offers the boy, all too eager to quit school for work on reaching his fourteenth birthday, a strong incentive to continue in school, because it bids fair to make him an earner while still a learner. Boys like to feel that as members of the family they are at last able to pay their own way. The highest net profit, so far reported, which was made by an agricultural pupil in 1912 from a home-farm project where live stock was used was $270.24.[1] By "net profit" is meant the profit after the pupil has paid himself for his own labor and met all other expenses in connection with his project. There were some failures to show profit from project work. Figures were radically reduced in a few cases by unseasonable frosts, drought, or blight. One boy's garden was cut back three times, at considerable intervals apart, by killing frosts.

On the whole, the returns were creditable and encouraging.

Twenty-five boys—five from each of five unlike farming sections in Massachusetts, where this plan was in operation in 1912—earned from farm work in connection with making excellent records for scholarships at school, $5,102.30. At the end of this chapter will be found two pages giving details regarding the individual projects of these boys. The table may serve to illustrate, also, the items of accounting for which the pupils are held responsible.[2]

3. PRIZES AND HOME PROJECTS.

Prizes offered by the 30 or more incorporated agricultural societies, each of which receives $200 a year from the State for such purposes,

[1] In this case the pupil had paid himself for labor $109.02. His direct earnings from this project were therefore $379.26. During this period this pupil was allowed, also, $300 credit for other farm work done at home. The cash and credit received by this pupil for farm work during the whole project period, therefore amounted to $679.26. But the accounts covering this project showed the following interesting and significant sums paid or allowed other members of his family: $109.02 for labor, man or horse; $662.47 for rent, hay, etc., or a total for the others of $771.49. This pupil graduated from the Smith's Agricultural School at Northampton in June, 1912. A tabulated statement from the accounts of five pupils from each of the five points in the State where home work had been supervised in the school year 1912 is given on pages 18, 19. No figures for Easton are given, because the vocational agricultural department at that place, as stated in the text, did not begin work until September, 1912.

[2] Thirty boys—five from each of six points—earned from farm work, in connection with the study of their agricultural projects, in 1913, $9,728.03. The scale and the number of the projects carried by the boys in 1913 were practically twice as great as those in 1912.

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and by other agricultural and horticultural associations, are to be important incentives to home-project work. The agri department at Hadley headed the list of winners in 1912 by ac its local prizes the championship of the State in stock judgin total amount awarded the Hadley pupils was $243 at fairs, an to Washington, D. C., won in a corn-growing contest un auspices of the Massachusetts Agricultural College.[1] V strictly for profit in a number of cases the past year did not of competing for prizes; but the two lines of effort may be nized, and, one being conducted as supplementary to the ot intelligence brought to bear by the boys on their producti work can not but be made the keener by such contests.

4. HOME PROJECTS OF NONRESIDENTS.

The Massachusetts law provides that pupils from other tow attend vocational agricultural schools or departments, and t tion on their behalf, at rates fixed by the board of education, paid by their home towns. On account of tuition, howe State reimburses the home towns of nonresident pupils to th of one-half the amounts paid.

Attendance of nonresident pupils is subject to approval board of education, and their home projects must be properl vised. This provision is extending the influence of vocatio cultural instruction and supervision over a widening are instructor has ridden a circuit the past summer of between 5 miles, when traveling by the most direct route from boy enrolled in his classes, and his duties as supervisor have tal regularly into six towns. Another has a circuit of between 4 miles. The shortest round trip was 30 miles. It may mo once happen that a town which could not alone command a s enrollment to justify the maintenance of an agricultural dep in its high school may with the aid of a few nonresident p able to do so. With the extension of its influence, there go distribution of the cost of maintaining this type of training b of the State-aided tuition payments.

[1] One hundred and thirty boys, each under 19 years of age, are reported to have competed for the preliminary prizes of $15, $10, and $5 in gold. Hadley won first at Amherst and again fi ampton. At the final contest in Brockton there were 15 competitors, with scholarships at M Agricultural College to the value of $150 and $50 offered, and both were won by Hadley. Th classes to be judged, and a perfect score in each was 60 points for placing and 40 points for reas sible grand total for the five classes of 500 points. The educational value of the contests was sho in the cases of the Hadley boys, who entered the preliminary contests at both Amherst and N The five boys who entered both learned so much from their experience at Amherst that they rating in the Northampton contest a total of 217 points, an average of about 40 points each. cultural pupils have won generous amounts, those of the Smith's Agricultural School hea leaving the Brockton fair out of account, with a total of $59 won at local fairs.

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5. SALARIES FOR HOME-PROJECT INSTRUCTION AND SUPERVISION.

It will readily be understood that the teaching and supervision necessary to the successful development of the school and home farm cooperative plan of vocational agricultural training require instructors of exceptional ability, both as practical farmers and as students of the various phases of agricultural science which bear upon productive agriculture. So far admirable selections appear to have been made. A fortunate feature of the legislation providing State aid is that there is no limit fixed for salaries. The best man for any given position may be selected, and the local authorities may pay whatever they feel their peculiar conditions warrant in order to secure and retain his services. The salaries at present range from $1,000 to $2,000 a year for members of staffs below the grade of principal or director; but there is an evident desire, wherever possible, to start the instructor at about $1,200 a year.

6. CULTURAL AND AGRICULTURAL.

The division of time in carrying out the school and home farm cooperative method of training, whether in agricultural departments in high schools or in the separate agricultural school, is as follows: For the execution of the projects, including work during vacations and other out-of-school hours, 50 per cent, and for the related study, 30 per cent. The remaining 20 per cent of the time of the boy is devoted to general culture and good-citizenship instruction, wherein systematic courses may be provided in such subjects as English, history, civics, current events, mathematics, and science.

7. FARMING AND GOOD CITIZENSHIP.

Good educational results have already been achieved. It is believed that the Massachusetts plan of vocational agricultural training will justify itself from every reasonable point of view, and will prove to possess undeniable merit as a plan of training both for farming as a definite calling and for intelligent and vigorous participation in the community life of any Commonwealth.

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State-aided vocational agricultural education—Exam

School or department.	Pupil's age.	Project or projects.	
		Title.	Scope.
1	2	3	4
Northampton	18	Dairying	12 Jerseys, Nov.–June
Northampton	19	Hot-bed	Mar. 1–June 7
		Poultry	22 R. I. Reds
		Potatoes	¼ acre
		Strawberries	1,000 plants
Northampton	18	Hot-bed	Early spring
		Potatoes	¼ acre
		Poultry	28 White Leghorns
Northampton	18	Poultry	52 Barred Rocks, 4 months
Northampton	20	Alfalfa	Seeding down 1½ acres
Petersham	15	Garden and potatoes	¼ acre each
Petersham	14	Garden	¼ acre
Petersham	14	Garden	⅛ acre
Petersham	17	Garden	¼ acre
Petersham	15	Garden and potatoes	¼ and ½ acre
Hadley	17	Fruit and corn	1 acre c., 118 apple trees
Hadley	18	Bees, poultry, corn	3 hives, 25 R. I. Reds, 1 acre
Hadley	15	Corn and poultry	1 acre c., 19 birds, 30 chicks
Hadley	18	Fruit and poultry	20 apple trees, off year, and 1
Hadley	16	Poultry	34 R. I. Reds
Northborough	17	Sweet peas	128 sq. rods
Northborough	16	Garden	91 sq. rods
Northborough	16	Potatoes and corn	¼ acre p., 1 acre c.
Northborough	17	Corn and potatoes	1 acre c., ¼ acre p.
Northborough	16	Potatoes	¼ acre (drought)
Harwich	15	Garden	¼ acre
Harwich	17	Garden	1 acre
Harwich	17	Garden	¼ acre
Harwich	17	Garden	¼ acre
Harwich	14	Garden and potatoes	¼ acre
Total for 25 pupils			

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income of pupils from farm work during attendance at school.

Pupil's project income.			Other family income from pupil's project.			Cash or credit received by pupil from farm work during project period.			
Net profit.	Paid self for labor.	Total.	Labor, man or horse.	Rent, seed, etc.	Total.	At home.	Away from home.	His own project.	Grand total.
5	6	7	8	9	10	11	12	13	14
$270.24	$109.02	$379.26	$109.02	$662.47	$771.49	$200.00	.....	$379.26	$579.26
37.80	8.80	46.60	.....	4.95					
16.94	6.00	22.94	.....	25.05					
16.28	2.42	18.70	3.10	6.40	64.30	180.00	$14.75	122.94	317.69
26.65	8.05	34.70	16.80	8.00					
11.04	3.46	14.50	.....	1.73					
3.68	3.82	7.50	4.83	8.44	37.16	175.00	68.00	[1] 51.81	294.81
28.74	4.52	33.26	.....	22.16					
19.22	13.72	32.94	.....	16.10	16.10	.....	162.50	32.94	195.44
.....	4.83	4.83	9.97	31.35	41.32	.....	145.05	4.83	149.88
93.30	16.76	110.06	29.45	1.00	30.45	100.60	48.00	110.06	258.66
44.35	12.00	56.35	5.00	15.35	20.35	164.60	6.08	56.35	227.03
10.67	20.00	30.67	4.00	4.75	8.75	150.00	2.50	30.67	183.17
14.03	11.80	25.83	4.65	16.60	21.25	63.50	22.50	25.83	111.83
18.00	15.00	33.00	23.53	.....	23.53	32.10	30.00	33.00	95.10
68.00	8.45	76.45	47.14	36.75	83.89	157.50	27.00	76.45	260.95
58.50	38.50	97.00	8.00	16.00	24.00	116.00	.....	97.00	213.00
28.27	20.20	48.47	10.80	10.50	21.30	232.00	15.00	48.47	295.47
20.15	6.15	26.30	3.00	2.00	5.00	47.30	125.30	26.30	198.90
7.65	13.50	21.15	.....	3.00	3.00	202.50	12.50	21.15	236.15
43.00	14.70	57.70	.....	.....	.....	168.00	.....	57.70	225.70
30.00	3.00	33.00	3.13	6.00	9.13	185.00	15.00	33.00	233.00
23.50	13.80	37.30	5.85	12.65	18.50	197.50	.....	37.30	234.80
33.10	11.25	44.35	9.25	46.95	56.20	132.00	5.00	44.35	181.35
.92	7.57	8.49	1.40	23.60	25.00	167.50	.....	8.49	175.99
31.27	15.20	46.47	6.00	2.50	8.50	12.00	.....	46.47	58.47
75.00	18.10	93.10	1.90	5.00	6.90	5.00	10.00	93.10	108.10
12.63	22.40	35.03	1.20	4.00	5.20	65.00	.....	35.03	100.03
15.92	6.70	22.62	1.40	1.30	2.70	75.00	5.00	22.62	102.62
7.90	7.00	14.90	9.62	.....	9.62	12.00	38.00	14.90	64.90
1,066.75	446.72	1,513.47	319.04	994.60	1,313.64	2,840.10	752.18	1,510.02	5,102.30

[1] Project income, less shrinkage in inventory of $3.45, gives $51.81.

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Chapter II.

AGRICULTURAL PROJECT STUDY.[1]

INFORMATION AND SUGGESTIONS FOR SCHOOL OFFICERS AND INSTRUCTORS AS TO COURSES AND METHODS OF AGRICULTURAL PROJECT STUDY APPROVABLE FOR STATE AID IN MASSACHUSETTS.

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1. PRODUCTIVE WORK AND RELATED STUDY.

The home-project or part-time plan of vocational agricultural education embodies, as has been shown in Chapter I, two distinct features. One is productive farm work, supervised by a special agricultural instructor, or group of agricultural instructors; the other is study directly related to that productive work. Both are essential, and for each careful provision must be made.

Of the two, it may, perhaps, prove to be an easier task for the special instructor to inspire and to direct competent agricultural production than to amplify and organize the training of his pupils so as to insure thoroughgoing study directly bearing upon their individual enterprises. Study directly bearing upon the projects of the pupils is called "project study."

2. PROJECT STUDY SUITABLE FOR VOCATIONAL AGRICULTURAL SCHOOLS.

(1) **Range and progress.**—Beginning with the boy of 14, who entered a vocational agricultural school in September, 1911, we may graphically represent the contemplated progress of his training from year to year by the following diagram. (See fig. 1, p. 23.) His training should make him acquainted with farm life and affairs in general, and especially well informed and competent in the particular fields covered by his special projects. No boy is required to carry out projects in every field here listed.

(2) **Studies not on diagram.**—Such subjects as agricultural botany, agricultural chemistry, history, civics, and English occupy other portions of the time of the pupils in a regular four-years course.

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[1] This chapter is chiefly a reproduction of materials published by the Massachusetts Board of Education in its Bulletin No. 8.

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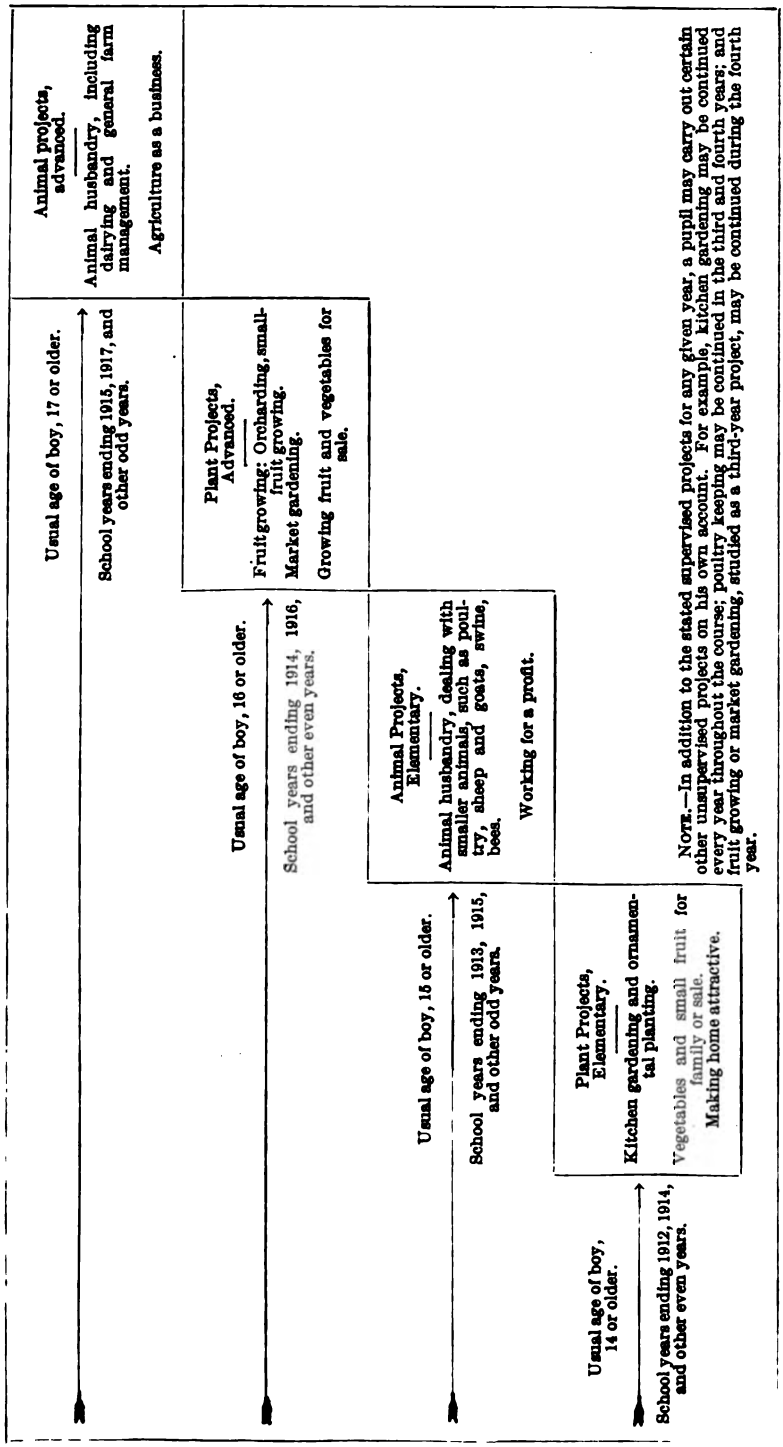
Usual age of boy, 17 or older.
School years ending 1915, 1917, and other odd years.
Animal projects, advanced.
Animal husbandry, including dairying and general farm management.
Agriculture as a business.
Usual age of boy, 16 or older.
School years ending 1914, 1916, and other even years.
Plant Projects, Advanced.
Fruit growing: Orcharding, small-fruit growing.
Market gardening.
Growing fruit and vegetables for sale.
Usual age of boy, 15 or older.
School years ending 1913, 1915, and other odd years.
Animal Projects, Elementary.
Animal husbandry, dealing with smaller animals, such as poultry, sheep and goats, swine, bees.
Working for a profit.
Usual age of boy, 14 or older.
School years ending 1912, 1914, and other even years.
Plant Projects, Elementary.
Kitchen gardening and ornamental planting.
Vegetables and small fruit for family or sale.
Making home attractive.
NOTE.—In addition to the stated supervised projects for any given year, a pupil may carry out certain other unsupervised projects on his own account. For example, kitchen gardening may be continued every year throughout the course; poultry keeping may be continued in the third and fourth years; and fruit growing or market gardening, studied as a third-year project, may be continued during the fourth year.

FIG. 1.—School project-study diagram.

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3. PROJECT STUDY SUITABLE FOR VOCATIONAL AGRICULTURAL DEPARTMENTS IN SELECTED HIGH SCHOOLS.

(1) **Necessary groupings.**—In order to enable one agricultural instructor to direct the project work and study of each of his pupils during a full half of the school time through a four-year course, groupings by years and projects like those in the following diagram are necessary. These groupings hold during the fall and spring terms. Certain other studies, like those above stated as open to separate agricultural school pupils, may be taken during the winter and during the fall and spring terms; but, if taken, must be so timed as not to interfere with the agricultural project work and study.[1]

School years ending 1912, 1914, and other even years. **First and second year pupils, one-half school time.**	**School years ending 1914, 1916, and other even years.** **Third and fourth year pupils, one-half school time.**
Agricultural science and projects applied to a given community: **Kitchen gardening**—Vegetables, small fruits. **Ornamental planting**—Shrubbery, flowering plants, lawns. **Farm shop work**—Making and repairing for home and school use—hot beds, cold frames, etc.	**Agricultural science and projects applied to a given community:** **Farm animals**—Types, breeding, management. **Farm buildings**—Sanitation and conveniences, plans, construction, upkeep. **Farm crops** for keeping the animals, rotations, balancing, cultivation, etc. **Farm machines** and implements, their use and repair.
School years ending 1913 1915, and other odd years. **First and second year pupils, one-half school time.**	**School years ending 1915, 1917, and other odd years.** **Third and fourth year pupils, one-half school time.**
Agricultural science and projects applied to a given community: **Small animals**—Poultry, sheep, swine, bees—types, breeding, management, rations, etc. **Buildings and equipment** for small animals—plans, cost, etc. **Home-grown crops** for small animals, kinds, quantities, seeds, soils, place in farm crop rotation, fertilizing, tillage, harvesting, storage. **Farm shop work** and other construction.	**Agricultural science and projects applied to a given community:** **Fruit growing**—Orcharding and small fruits not before dealt with, propagation, cultivation, packing, etc. **Market gardening**—Markets, soils, seeds, fertilizers, tillage. **Buildings and appliances**, plans, devices, implements and machines—cost, use, and upkeep. **Farm shop work** and other construction.

Fig. 2.—Department project study diagram.

(2) **Agriculture first.**—The regulations governing these departments further require that when conflict is unavoidable or when, as at planting time, continuous application for a number of consecutive days to his projects becomes necessary, all else must yield to the pupil's proper agricultural instruction, no matter at what cost for the time being to his other studies.

Economic returns as direct incentives to competent training are fundamental here, as in the training of vocational agricultural schools.

[1] The agricultural instructor is given his vacation in winter. A glance at the diagram (fig. 2) will show that in both odd and even years he carries responsibility for both plant projects and animal projects. He is thus well prepared to answer questions of farmers whenever they may turn to him for advice.

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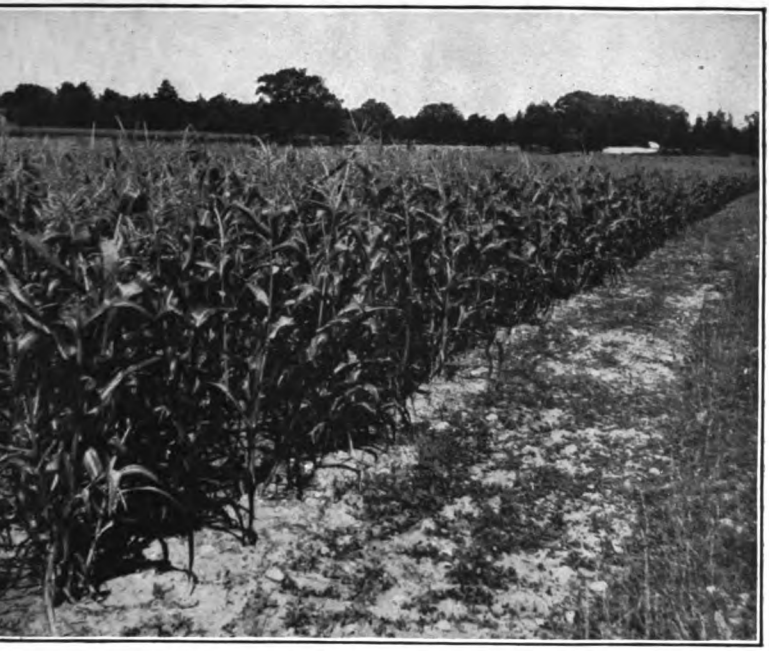

A. HOME PROJECT—2½ ACRES OF SWEET CORN.

B. AN "EXTRA" HALF-ACRE MARKET-GARDEN PROJECT.

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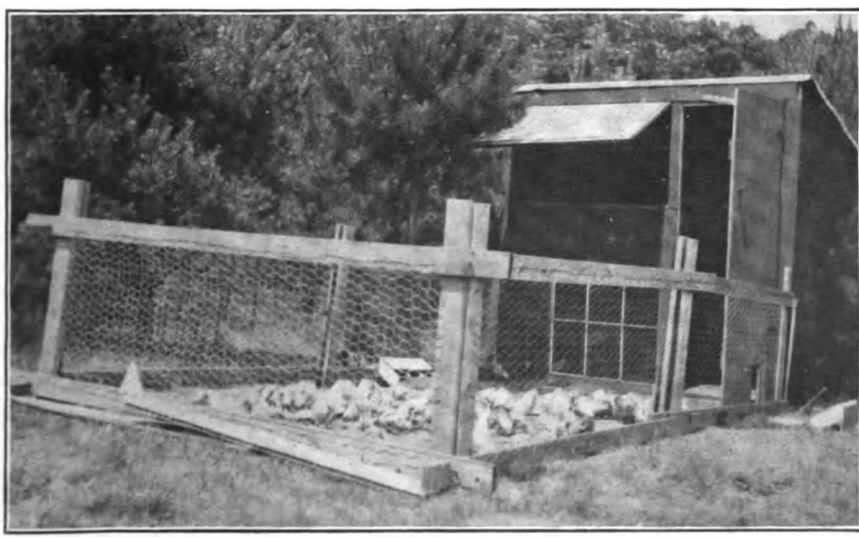
A. SCHOOL SEED-BED PROJECT AT HOPKINS ACADEMY.



B. COLONY HOUSE AND YARD. ONE OF SEVERAL CONSTRUCTED AND USED BY A POULTRY PUPIL AT HARWICH.

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If experience shows that instruction in the departments should be limited to first and second year projects, pupils desirous of third and fourth year project training may later be provided for in the separate or county agricultural schools.

4. PROJECT STUDY CONCENTRATION. YEAR LIMITS.

(1) **Pupil.**—As shown by the foregoing diagrams, the range of the boy's training is expected to be somewhat extensive, covering typical farm products which are feasible for his neighborhood. It is designed, however, that the training of each year shall be complete in itself; also, whatever other projects he may undertake or continue on his own account, that the pupil's first duty in any given year shall be the carrying out of certain projects selected from the groups assigned to that year for study.

(2) **Instructor.**—Similarly, while an agricultural instructor may give advice and assistance privately to pupils who are carrying on extra projects, the first duty of this instructor is to the particular groups of projects published for any given year.

(3) **Published year groups.**—In short, upon the particular project groups published for treatment in any given year the attention of both pupils and instructors should be concentrated.

5. PROJECT STUDY AND CAPACITY OF PUPILS.

(1) **Individual v. Class.**—Careful planning of the project study will be necessary on the part of each instructor. The project method of education more, it is believed, than all others takes into account the aptitudes, requirements, and accomplishments of indvidual pupils as these are revealed from hour to hour.

(2) **Varying capacity.**—Acquaintance with pupils who enroll for vocational agricultural education reveals wide variation among them in capacity for project study. Since farm results under the project method must be obtained, not directly by the instructor, but indirectly through the individual pupils, the instructor's plan should provide for at least an essential minimum of accomplishment on the part of the least capable, for a desirable maximum on the part of the most capable, and for a large body of educational values to be grasped by the greatest number, pupils who are neither the least nor the most capable.

6. KINDS OF PROJECT KNOWLEDGE.

There may be distinguished three phases of instruction in agricultural projects, suited pretty exactly in their varying scope and degrees of difficulty, to the three fairly distinct kinds or grades of capacity found among the agricultural pupils. An analysis of project knowledge which shows these three sorts or gradations will

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be of direct assistance to the instructor in formulating his p
study program.

(1) **Rules,** or plans and specifications, however simple in
and whether on paper or in the mind, are necessary for the int
execution of any piece of productive work.

A boy may become a more or less capable farm hand
knowledge in advance of the enterprise, as a whole, upon w
enters. An ordinary laborer is capable of taking orders and c
routine farm work. Project work under capable supervision
produce a skillful farm hand, but one who desired hand traini
should hire out to a progressive farmer.

Project study, the other fundamental of the project method,
produce managerial ability. Good headwork is required for su
farming no less than good handwork. Project study in the
even the least capable boy admitted to this training should r
evidence of mental accomplishment. A good form of such e
is a record on paper of the rules by which that boy proposes t
has been, governed in the execution of his productive ente
Inability or disinclination on the part of any pupil to find or fo
such rules is evidence of his present mental or moral unfitn
this type of training.

Mastery, in short, of the simplest rules by which the succes
productive work must be determined should be looked upo
essential minimum of accomplishment on the part of th
capable boy who is permitted to remain in the class.

(2) **Reasoning.**—Beyond the precise rules necessary for su
any given project there is the reasoning from experience
scientific principles, which is their justification. Most of the m
of a class readily penetrate to this reasoning; or, at the han
capable instructor, are penetrated by it.

The larger educational efforts of the instructor should be
toward training his boys, not merely in finding the naked r
which their project work must be governed, but also in disc
the practical experience or the laws of nature which lie back o
that is to say, he should aim to possess his pupils of rules,
"rules of thumb," but as rules of reason.

Good farm management depends upon good judgment, up
soning power—not on ability to find good rules so much as on
to make them. In the notebooks of most of the boys, therefor
should be recorded the general principles which they have m
and of which their rules have been but particular application

(3) **Broader results.**—The third kind of project knowled
consist of informational materials of many sorts—statistica
mercial, geographical, historical, scientific, social, and the like

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Such knowledge can not be looked upon as a direct tool for carrying out a project. It may directly supply neither a rule nor a reason. It may, nevertheless, consist of many most interesting discoveries, offer much most excellent educational experience, and be of such a nature as to give the young producer what may be termed, in the broader senses of that expression, agricultural horizon.

Such knowledge falls readily within the grasp of the most capable pupil, and may well be considered for him a most desirable maximum of project knowledge.

(4) **Typical for all projects.**—These three kinds of project knowledge are typical for all vocational agricultural projects and years. Of the three, the first and second are in the strictest sense vocational; the third has obvious vocational relations, but may be largely cultural.

(5) **The three R's of the project method.**—It may not be altogether amiss to declare at this point in express terms that in these divisions of project knowledge, "Rules," "Reasoning," and "Broader results," we have the three fundamentals—the three R's—of agricultural study by the project method.

7. PROJECT STUDY RECORDS.

(1) **Of highest importance.**—In view of the above discussion, the project study records of the pupils become of the highest importance. In them we may expect to find the results of the instructor's best efforts as both program maker and teacher.

(2) **A supposed project.**—The groups of projects published for the school year ending in 1914 include kitchen gardening. A constituent of kitchen gardening is vegetable growing. Suppose that the boy's main project is providing all, or a part, of the home vegetable supply. Suppose a subproject to be the production of lettuce. Suppose, finally, that we consider the knowledge related to this subproject to have been assembled in a notebook.[1]

(3) **A supposed notebook.**—The aims of the different divisions of the project study may then be represented graphically by the following diagram (fig. 3) of such a possible notebook. The dotted vertical line indicates the binding of two notebook pages which lie open and are ruled as if a single broad sheet. Notebooks so ruled are now in successful use. The diagram is not drawn to scale. The subject matter below the headings is explanatory of the several kinds of knowledge the pupil would find and record.

[1] Notebooks should, of course, be kept by every pupil; or, if not kept in notebooks, the record of his findings from his project study should be kept by the pupil on cards, filed back of tab cards bearing appropriate project titles. The agent of the board of education for agricultural education assists Massachusetts instructors in the use of the card method, if this is preferred and his help is desired.

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8. APPORTIONMENT OF PROJECT STUDY, TIME, AND MATER

(1) **Diagram column widths.**—The relative widths of the columns may be considered indications of an approved app ment of time among the three kinds of subject matter for th capable pupil. The first column represents the least requi any pupil should be expected to meet in order to justify his tion in the class. The first and second columns represent r ments most of the pupils should be expected to meet.

14 (page) (

Project: Kitch en gardening.

Subproject: L ettuce crop.

1 **Rules.** Namely, the Precise Plans and Specifications made for this Project.	2 **Reas oning.** Namely, Evi dence from Science, Observation, and Experience that this Project as pla nned is thoroughly understood and can be defended.	3 **Broader r** Derived More G Observat Study
Object: Skill.	*Object:* Mana gerial ability.	*Object:* O
Notes should show	*Notes sho uld show*	*Notes may*
The minimum of knowledge of methods, materials, equipment, and operations required for success this year on the land selected for this project.	Knowledge necess ary for planning a successful cropping s ystem for vegetables, a system in which the lettuce crop may have a proper place. Mastery of certain principles of agricul- tural science which fi nd some of their best illustrations in lettuc e growing. Principles applicab le to lettuce growing under varied condition ons, but particularly under those which promise success with this project the present year.	Acquisitio more extensi of knowl centering the lett plant and Histor botani classifica utilization the lik
What to do *First* *Second, etc.*	*Why's* *and* *Wherefore's.*	*Knowled itself desirab*

FIG. 3.—Diagram of project study record.

(2) **Faculty cooperation.**—At least three-fourths of the most c pupil's time should be occupied by the subject matter of co 1 and 2. Column 3 might well be covered, particularly in th years of the four-years' course, by special exercises given th capable pupils by other teachers, such as teachers of botany, istry, physics, mathematics, drawing, or English.[1] Close co tion between these teachers and the agricultural instructor further this end.

(3) **No pupil "held back."**—In order to direct the project st his class in the most competent manner, the instructor must of organize his teaching materials in advance in accordance wit at least, of the three divisions of knowledge above described.

[1] For a suggestive diagram showing possible correlation of elementary school subjects with scho ing, see the insert sheet, opposite page 294, of "Among school gardens," by M. Louise Greene (Ag Project Bibliography. Entry No. 852.)

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ovide materials of all three kinds, he will have the satisfaction wing that the same amount of time may be devoted by the class to study related to such a subproject as lettuce produc- nd yet that no pupil will be "held back" by any other pupil— t most devoutly to be desired in all forms of teaching.

First column, first in fact.—It should be emphasized, further, he first concern of the least capable should be equally the first n of the more or most capable. The movement of project should begin at column 1. The movement should be from left t, across the field represented by the foregoing "Project study " diagram—not, as has too often been the case in the study of lture, from right to left.

High school half days, spring and fall.—Probably the most lt school schedule problems will be encountered in the high- vocational agricultural departments. It will be borne in mind alf the school time during the fall and spring terms is to be on agricultural project work and study. It is desirable that this allowance, when spent away from home, shall be spent in the with, or under the direct supervision of, the agricultural in- or.

More mature and less mature minded.—Diagrams showing he less mature-minded group and the more mature may be l to good advantage during the high-school department strictly ltural half days follow.[1] (See figs. 4 and 5.)

younger group is assigned to the agricultural instructor fore-

Parents of these pupils or their other teachers will be respon- or their afternoons. In these departments, where the entire nent should not exceed 20, the pupils may generally be divided vo groups of about equal numbers. Since some of the more ma- ave already been attending high school, where there is but one , and have started on morning studies, two of which they esire to continue, the older pupils have been assigned to the agri- al instructor afternoons.

Project study versus agricultural survey.—It will be noticed ost of each half day, and, when occasion demands it, the entire s definitely assigned to project work or to study related thereto. roject work will be continued during the summer, with school ision. The project study will be completed in the fall and terms; except that during the summer there will be much ing, in field and barn, of facts and principles, some noting of cts as a basis for the further study of principles, and careful record keeping of the expenses and receipts of the projects cted.

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diagrams may be found suggestive in schedule making at separate agricultural schools, where t study method is followed.

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(8) **Class focus.**—The horizontal cleavages set off the firs periods—periods which have this in common, that for the ti there is in each period some single focus of attention for t class. Here the methods are those with which all are famili recitations or discussions.

Periods.[1]	**Forenoon group: First and second year students.**
9.00 to 9.45	**Agricultural survey (elementary):** *About 75 periods.* *Object:* General study of agricultural production and rural life. *Textbook:* "Beginnings in agriculture," by Mann. Put emphasis on soils an portions in year for horticulture; on animal portions in year for animal Give much attention to suggested problems. *Omit* this agricultural survey exercise whenever the entire forenoon should be productive work, or to library, laboratory, or other instruction bearing di that work.
9.45 to 11.15	**Project work or project study:** *About 300 periods.* *Object:* Execution of home or school productive projects undertaken by the ind dents, coupled with laboratory, library, and other study and observat bearing upon those projects. *Concerted attack* by the entire class on plant projects in even years (1912, 191 on animal projects in odd years (1913, 1915, etc.). *An extra project* in animal husbandry may be undertaken in an even yea arrangement with the instructor; as, also, one in horticulture in an odd yea *Reference books and bulletins*, including agricultural laboratory manuals, will b sulted according to the ability and needs of the individual students. *Notebooks*, carefully kept, will set in order the ideas and plans derived from thi instruction for guidance in carrying out individual projects. *Method:* Minimum of class instruction; maximum of personal individual guid instructor will go from student to student, as does the teacher in shopw tory, or drawing room.
11.15 to 12.00	**Project work or project study** (*Continued*). **Class discussion of individual projects:** *About 125 periods.* *Object:* To subject individual ideas and plans to the criticism of the entire clas to clarify principles and intensify impressions. *Round-up of opinion:* The value of closing each forenoon with this class discu out of the fact that though each has been working on his particular proje been working upon the same sort of project, at the same time; as, for exam as a kitchen garden crop. A device for making all acquainted with w doing, and showing that general rules must often be modified in order t needs. A means for developing the managerial type of mind.

FIG. 4.—Diagram of agricultural project periods for selected high schools in fall and spr

(9) **Individual focus.**—The vertical cleavages of the periods may serve both to indicate and to emphasize the i study of each pupil, the careful and the exclusive attention the needs of each pupil by the instructor, the adaptation o agricultural principles to the peculiar home farm requirem facilities of each particular boy in the class. Here the me those which have their closest parallels in customary scho

[1] Periods may be of the same length as those of any particular school. Reserve the first for t the last for the "Round-up," and the body of morning for individual instruction. Periods summer will be determined by the work undertaken, and will be covered by daily time she

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ratory" instruction, whether in drawing room, shop, library, or science laboratory.

(10) **Prime merit of this apportionment.**—It is one of the most important merits of this project or part-time plan that the instructor is thus able to deal with the particular needs and capacities of individual pupils and at the same time maintain close, efficient, and progressive class organization and control.

Periods.[1]	Afternoon group: More mature minded students.
1.00 to 1.45	**Agricultural survey (advanced):** *About 75 periods.* *Object:* General study of agricultural production and rural life. *Textbook:* "Elements of Agriculture," by Warren. Vary emphasis in alternate years to accord with subject matter of project work. View local conditions in light of text. *Omit* this survey exercise whenever the entire afternoon should be spent in project work or in observation or study directly related thereto.
1.45 to 3.15	**Project work or project study:** *About 300 periods.* *Object:* Execution of home or school productive projects, coupled with library, laboratory, and other study and observation directly related to those projects. *Concerted attack* by the whole class upon animal projects in even years (1914, 1916, etc.) and on plant projects in odd years (1915, 1917, etc.). *An extra project* in horticulture may be carried out by special arrangement with the instructor, in an even year; or, in animal husbandry, in an odd year. *Reference books and bulletins*, including agricultural laboratory manuals, will here be consulted, according to the ability and needs of the individual students. *Notebooks* will be carefully kept, for setting in order the ideas and plans derived from this individual instruction for guidance in executing the projects undertaken for profit by the individual students. *Method:* Same as in forenoon for first and second year students.
3.15 to 4.00	**Project work or project study** (*Continued*). **Class discussion of individual projects:** *About 125 periods.* *Same purposes* to be served here as in corresponding period for less mature group. (See last period of forenoon.)

Fig. 5.—Diagram of agricultural project periods for selected high schools—Concluded.

9. VEGETABLE-GROWING PROJECT STUDY.

We have seen that vegetable growing is among the projects assigned for first or second year study. The pupil brought up on a farm is likely to bring to the classroom considerable familiarity with several kinds and varieties of vegetables. It remains for his agricultural instructor to amplify his knowledge and experience to the fullest possible extent.

Chapter III gives suggestive outlines for vegetable growing, together with a brief preliminary discussion of various possible classifications of vegetables and a list of vegetables successfully grown in Massachusetts home gardens. It is therein stated that

[1] See footnote on preceding page as to length of periods and number of summer periods. Same rules to apply to more mature as to less mature students.

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probably it will be feasible in most cases for the pupils to undertake to grow 11 varieties, illustrative of the 11 groups of vegetables which may be distinguished from the very practical point of view of their methods of cultivation.

The requirements and tastes of most families will probably make it easy to secure the consent of parents to the growing of this number of varieties in sufficient quantity for the home supply. In addition each pupil should be encouraged to grow at least one variety on such a scale as to provide a surplus for sale as a cash crop.

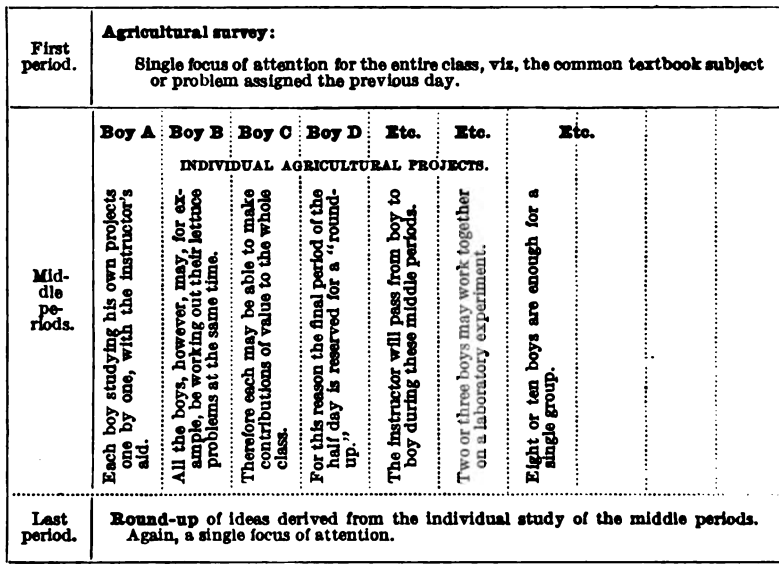
First period.
Agricultural survey:
Single focus of attention for the entire class, viz, the common textbook subject or problem assigned the previous day.
Middle periods.
Boy A
Boy B
Boy C
Boy D
Etc.
Etc.
Etc.
INDIVIDUAL AGRICULTURAL PROJECTS.
Each boy studying his own projects one by one, with the instructor's aid.
All the boys, however, may, for example, be working out their lettuce problems at the same time.
Therefore each may be able to make contributions of value to the whole class.
For this reason the final period of the half day is reserved for a "round-up."
The instructor will pass from boy to boy during these middle periods.
Two or three boys may work together on a laboratory experiment.
Eight or ten boys are enough for a single group.
Last period.
Round-up of ideas derived from the individual study of the middle periods. Again, a single focus of attention.

Fig. 6.—Another diagram of the agricultural half day.

The pupil may be helped at will in the actual work of his vegetable growing by members of his family, by exchanging work with fellow pupils, or by hired labor. It is essential, however, that he himself, with, of course, the aid of his agricultural instructor, shall plan his project and manage it; shall be taught and shall attain proficiency in every phase of the actual work of his productive enterprise; and finally shall render an accurate account of all expenditures and receipts in connection with his undertaking.

In vocational training the economic aspects of the projects carried out by pupils are of the utmost importance both as to manipulative skill and as to sagacity in management. Work, use of teams and tools and such materials as stable manure, for which cash is not paid, should therefore be charged at fair valuations against the projects; and all products, whether furnished the family, given away, or sold, should be credited to the projects at current retail prices. The suggestive outlines in Chapter III include questions on the economic elements of project study.

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A. HADLEY BOYS HELPING EACH OTHER AT CORN HARVEST.

B. COACHING HADLEY STOCK-JUDGING TEAMS.

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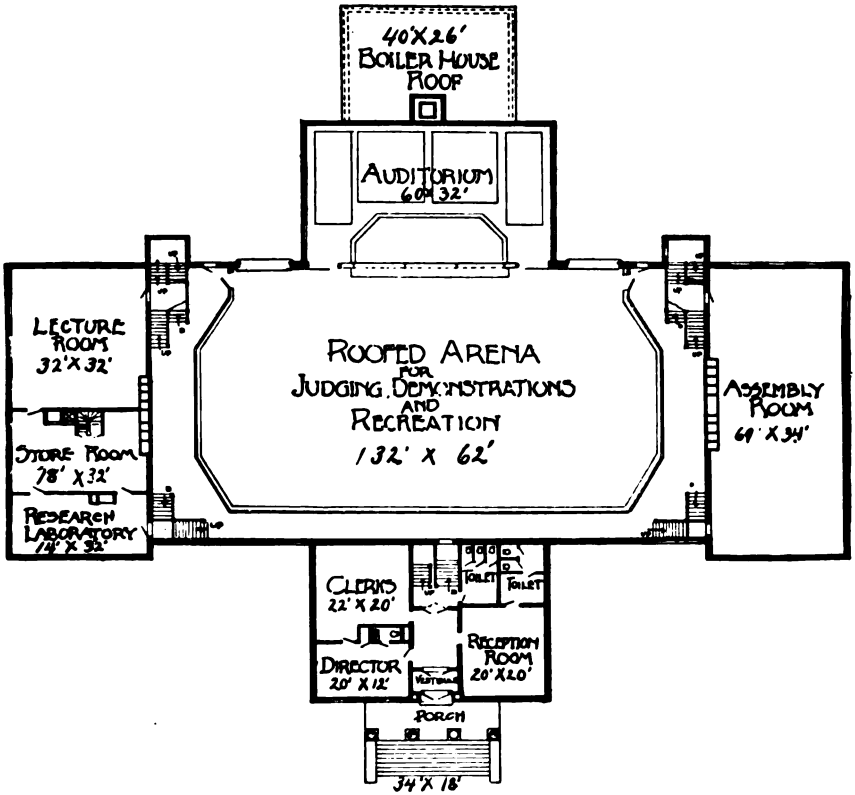

A. PLAN OF BUILDING AT SMITH'S AGRICULTURAL SCHOOL, NORTHAMPTON, MASS.

B. ARENA AND AUDITORIUM, SMITH'S AGRICULTURAL SCHOOL, NORTHAMPTON, MASS.

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10. SMALL-FRUIT-GROWING PROJECT STUDY.

The best home gardens are seldom considered complete without an abundant supply of small fruits, such as blackberries, raspberries, gooseberries, currants, and strawberries. Grapes also are sometimes included. The small fruits are often found in the same inclosure with the garden vegetables. When we add that the garden is generally most convenient if located near the house, and that all of these small fruits, save strawberries, are tall or moderately high growing, we have said about all about them that can be said in general for assistance in garden planning.

Farm boys are more or less familiar with the above facts. Following, therefore, the making of the preliminary garden sketch, which should show intention of growing one or more small fruits, the small-fruit project study will best deal with individual varieties and be guided by outlines like those suggested for varieties of vegetables.

11. BEEKEEPING PROJECT STUDY.

Beekeeping is an interesting and profitable side line in well-balanced farming. It is particularly important where any considerable attention is given to fruit and vegetable growing. It is therefore a worthy project for first or second year pupils.

Every agricultural pupil should be taught the importance of bees in their relations to economic plants, and their nature and possibilities as economic animals. So much knowledge will be included in the general study of agriculture by both the younger and the older pupils during the periods set apart in the foregoing diagrams, figs. 4 and 5, under the designation "Agricultural survey."

Every vocational agricultural school and department should own, work with, or have access to at least one hive of bees. Undoubtedly certain pupils will desire to conduct beekeeping projects. Project study outlines should be prepared for them, and should cover at least two of the three kinds of project knowledge before discussed.

Since pupils are not to be required to conduct projects in every field covered by the published course of training, beekeeping may be looked upon as one kind of project from which, at their desire or at the discretion of the instructor, pupils may be held exempt.

12. POULTRY-KEEPING PROJECT STUDY.

The study of poultry keeping has been pretty fully discussed as to ways and means, and its desirability and feasibility have been set forth with considerable detail in a previous report.[1] It may

[1] Board of Education (Mass.), seventy-fourth annual report, for 1909-10, pp. 236-240; also "National Society for the Study of Education," eleventh yearbook, Pt. II, pp. 38-40.

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safely be urged that every pupil should be permitte
required, to conduct a poultry project.

Project study outlines of the sort suggested for veget
will be just as necessary here as elsewhere for the prope
the poultry project pupils.

13. SHEEP AND GOAT HUSBANDRY PROJECT ST

Sheep and goats in some localities are objects of keen
economic importance; in other localities they are not.

As to general knowledge and possible exemptions, w
of beekeeping should apply equally here. Projects sh
mitted when strongly desired; and, when permitted, pr
by appropriate project study outlines; they should not

14. SWINE HUSBANDRY PROJECT STUDY.

Swine husbandry should, probably, in most cases h
nearly equal in importance to poultry keeping—perhap
school projects between poultry keeping and beekeepi
in this field should be optional with the individual p
knowledge of swine husbandry will be had through the
survey study and its attendant trips for observation.

Where the home farm conditions are at all favorable, s
should be urged and outlines for their proper study pro

15. ORNAMENTAL PLANTING PROJECT STUD

Few good farmers are entirely heedless of the attractiv
of their farm property as farm homes. Some attenti
given by every agricultural pupil to such ornamental p
appropriate under reasonably thrifty farm-home conditi
at least one year of his course, along with his utility pr
boy should carry a project devoted to the beautifying
some slight measure, his home surroundings.[1]

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[1] List of ornamental plants successfully used at Smith's Agricultural School, Northa

Annuals.

Marigolds (African).
Marigolds (French).
Zinnias.
Nasturtiums.
Calliopsis.
Candytuft.
Salpiglossis.
Centaurea.
Eschscholtzia (California popp
Mignonette.
Asters (Semple's branching).
Portulaca.
Nicotiana.

Shrubs.

Berberis Thunbergii, Japanese barberry.
Cornus Siberica, Red-twigged dogwood.
Forsythia suspensa, Yellow bells.
Ligustrum Regelianum, Regel's privet.
Lonicera Morrowi, Morrow's honeysuckle.
Lonicera tartarica, Tartarian honeysuckle.
Philadelphus coronarius, Syringa.
Pyrus Japonica, Japanese quince.
Rhus typhina, Staghorn sumach.
Rhus glabra, Smooth sumach.
Ribes aureum, Yellow currant.
Rosa rugosa, Japanese rose.
Sambucus Canadensis, Elderbe
Spirea Von Houtei.
Spirea *Thunbergii*.
Spirea *callosa*.
Physocarpus opulifolius, Nineba
Syringa vulgaris, Lilac.
Viburnum opulus, High-bush c
Aralia spinosa, Hercules club.

[Footnote continued on next page.]

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Some study will have been given farm-home attractiveness during the periods devoted to the "agricultural survey." Good home project work, however, will be as dependent here as elsewhere upon project study outlines carefully adapted to each pupil's home conditions.

16. THIRD-YEAR AND FOURTH-YEAR PROJECT STUDY.

The project study method is identical for all years. When, therefore, pupils now beginning vocational agricultural training have progressed so far in the course as to be prepared for it, third-year and fourth-year project study should be provided for in the manner above indicated. Project study outlines for fruit growing, including orcharding, should be drawn; outlines, also, for the handling of certain vegetables from the market gardener's point of view, and for dealing with the serious problems of dairying.

Every advantage in this outline making should be taken of the opportunities thus afforded for the thorough reviewing of the basal principles of plant production and animal management already dealt with in the project instruction of the two previous years. This reviewing should insure a consistent and closely knit body of knowledge supported by the practical applications of that knowledge. It should, also, make it possible for an older boy who has had good farm experience to enter the course to advantage at the beginning of the third or even of the fourth year.

The field of study one year here, as earlier in the course, should be restricted to and concentrated upon plant projects, and the other year centered upon animal projects.

[Continuation of footnote from preceding page.]

For cuttings.

Hardwood:
Spirea Von Houtei.
Spirea *Thunbergii.*
Syringa vulgaris, Lilac.
Privets.
Forsythia.
Philadelphus coronarius, Syringa or Mock orange.
Rhus typhina, and *glabra.*

Green:
Geraniums.
Salvia.
Rex begonias, for leaf cuttings.
Cannas, tuber cuttings.

Herbs.

Dill, Thyme, Lavender, etc.

Vines.

Cinnamon, Virginia Creeper, *Ampelopsis tricuspida.*

Bulbs.

Indoor forcing and outdoor use:
Narcissus.
Tulip.
Hyacinth.

Miss S. M. Weed, instructor in ornamental planting at the Northampton School since 1908, makes the following observations regarding the above lists:

"Any of the flowering plants listed are easily grown at home. Choice and range of plants for home gardening depends entirely upon the resources of individual pupils—amount of land available, location, nature of soil, etc. An assortment of from 6 to 10 varieties is about the number most profitably cared for by the majority, but, as I have stated, this number varies greatly.

"As an incentive to home work might be mentioned starting plants at school, to be taken home for use later. Asters, cosmos, and pansies are good plants to use in this way. It is also an advantage to have on hand seeds of standard quality and kind which pupils may buy from the school, thus insuring the use of good seed."

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The method of procedure is believed to have been el with sufficient clearness in the foregoing discussion and in III, containing suggestive project study outlines for v growing, so that its application to third-year and fourth-yea study need not at this point be further elaborated.

17. PROJECT STUDY VERSUS SUBJECT STUDY.

Critics familiar with the curricula and methods of teachi mon to most public schools of secondary grade have r a radical difference of method between subject teaching and by projects. Fear has occasionally been expressed that the innovation in educational methods may, apart from the skill result in putting the pupil in possession of merely a more incoherent collection of knowledge fragments.

(1) **Subject study.**—*A. Organized knowledge.*—Subject it is urged, puts the pupil in possession of coherent bodies o ized knowledge. Subject study, moreover, it is pointed far, at least, as it is of the more modern type, takes into the environment of the pupil; and the practical bearing education, so far as it has any, are thus made plain to hi standing. Subject study stops short at this point. For knowledge as such it recognizes no responsibility.

B. Deferred values.—Having been schooled in terminol principles, also in orderly and efficient habits of reasoni having been led to make certain laboratory and other obse as to the applications of principles in the work-a-day wo pupil must then be trusted to develop efficiency on his own in one or another field of applied knowledge. The principa properly to be expected from subject study, therefore, ha termed "deferred values."

C. Agriculture and subject study.—Agriculture has g been taught by the subject method.[1] A part of the far year, usually the summer, has been spent on his home farm; part of the year, usually the winter, or the months of the cu school year, has been spent, in most cases at a consider tance from his home farm, at the agricultural school or coll the former, his attention has been devoted to productive

[1] Following is the list of subjects found in the undergraduate course of training prescribed tive teachers of agriculture by one of the most prominent agricultural colleges. With the given the hours required for each. The significance of this list is found in the tendency for teaching to be imitative, to try to teach by the very same methods by which they themselv taught.

Agronomy	21	Thermatology	2½	English	
Animal husbandry	16½	Botany	6	Rhetoric	
Dairy husbandry	8	Chemistry	15	Economics	
Horticulture	15½	Entomology	2½	Education	
Secondary school agriculture	6	Zoology	5	Library science	

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ture; in the latter, to agriculture as more or less divided bodies of organized knowledge.

D. The unaided farm boy.—To the farm boy himself, alone and unaided by the supervision of his agricultural instructors, has been left the educational task, well-nigh impossible, under such circumstances, of bringing these elements of his experience—one concrete, the other abstract—into efficient relations, whether for purposes of intelligent understanding or for purposes of economic returns, with the result that the anticipated values of such subject study have too often been deferred indefinitely.

E. Education in forgetting.—Judging from the experience of many pupils, and among the number not a few who have gone on to college, much secondary education by the subject method might justly enough be called "education in forgetting." In fact, it has sometimes been argued that the educational process, as a process, as a means of developing mental alertness, acuteness, and power, is the main concern of the subject-study method; that the forgetting is to be expected, is not to be too much deplored.

The structure and habits of the human mind and brain are such that, following the psychological laws of segmentation, unused knowledge tends to be "forgotten." Much, a vast deal, of the subject matter turned over and otherwise dealt with by the subject-study method is of such a nature that in out-of-school hours and in after-school years it remains unused. To the extent that it remains unused, its forgetting, save by minds supported by the most unusual brain substance, is inevitable. Whether to be deplored, therefore, or not, it has over and over again been observed that examinations once passed and the school year ended subjects are forgotten.

F. Subject-study merits.—For the training of the so-called "abstract-minded" boy, of the boy naturally gifted with a retentive cerebral organism, and of the boy who is to follow a professional as distinguished from a productive career, the subject-study method must be conceded appreciable merits; and these merits become the more pronounced and permanent in proportion as the method, in its dealing with materials and principles, is strongly inductive.

(2) **Project study.**—*A. Accompanied by subject study.*—Merits conceded subject study, however, are not to be subtracted from the total merits of vocational education. The training of the boy who desires a vocational agricultural diploma includes, as we have seen, the subject study of English, history, civics, botany, chemistry, and general agricultural subjects, such as soils, tillage, and crop rotation. That this subject study does not precede but accompanies or follows the boy's project study directly and decidedly enhances its value.

B. Organization of common sense.—a. Induction and application.—But project study has merits peculiarly its own. No more diligent

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or effective application of the inductive method in educatio
ever been witnessed than that proposed, and in good measure al
practiced, by the project study of agriculture. The educational
is not left open, but is here completed. The movement, from obs
data of agricultural production to general laws and princip
followed by the reverse movement, which is embodied in the
cation of the laws and principles of science—embodied, that is t
in economic agricultural enterprises conducted by the pupils or
home farms under competent school supervision.

b. Personal economic interest at stake.—Mr. Huxley's fa
definition of science is understood to have been "organized co
sense." The project-study method consists not so much of th
ning of "science" already organized and brought to the bo
books as it consists of the actual organization anew of the co
sense required for successfully controlling the personal affair
economic fortunes of the pupils themselves. The "career moti
here dominant, inspiring, compelling. Upon the organizati
common sense is put a strong, personal premium.

c. Natural *versus* artificial units.—The units of project study a
the units of another man's career nor of another man's book.
may, nevertheless, consist of findings from many sources, inc
picked careers and selected books.

Olericulture may be made a subject study; so, also, may chem
Rarely, however, does the subject study of chemistry, for exa
include all of chemistry. The limits set are arbitrary.

The lettuce crop to be produced by the pupil in a given ye
project-study unit. As such it requires mastery of certain po
of both olericulture and chemistry. The requirements for proc
the crop under the known home conditions mark the limits o
unit. These limits are not artificial; they are natural. The
of knowledge to be gained have been indicated above by the sug
contents of the boy's project-study record. The boy's know
may be complete for its purpose—an organized unit, a bod
articulated and thoroughly comprehended.

The project method deals with natural units. By this meth
boy's common sense is focused, clarified, and put directly to imp
economic tests.

d. Project-study units and pure science data.—Project
moreover, will probably prove to be one of the most effective
of accumulating first-hand data for the successful study of scie
science. The lettuce plant, for example, thrives best in almo
garden soil when fed freely one particular kind of plant food, n
nitrogen. The pupil must therefore know this raw mater
chemistry, not at the outset in its every form and use, but
special form best suited to the needs of the lettuce plant. H

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learn to think and speak of it by the symbol the chemist has assigned it. That symbol will then have been learned once for all. Later, in other project study, he will learn more about nitrogen in its relations to productive agriculture. One by one, if wisely taught, he will similarly come to know other elements of plant or animal food, together with their symbols. He will come to know them in an intimate, personal way, by name and symbol, by appearance and action. All this will surely be gain, and not loss, if later the boy has opportunity for studying these chemicals in their more general relations.

e. Education in remembering.—The knowledge which is the boy's quest in project study is knowledge of which he sees the need. Being needed year by year, it will year by year be recalled. Used again and again, added to, modified, and exactly applied, it will tend to be distinctly remembered.

If unused knowledge tends to be forgotten, the converse is most emphatically true. Used knowledge tends to be remembered. The primary pursuit of project study as the accompaniment of project work is the organization of definite and coherent bodies of knowledge which the recurrent seasons will naturally and of necessity call into use. Forgetting here is a hindrance. If it occurs, it is not a virtue but a fault.

In short, the organization of common sense by the project-study method is not education in forgetting; it is education in remembering.

f. Traditions of success versus traditions of defeat.—Educators and public-spirited people in general are gravely concerned over the yearly exodus from school of the army of children whose schooling is halted as soon as the compulsory-education laws release them. But why should they not go out?

In a vast proportion of cases their lot in school has been far from happy. The "bookish" boy has been, and may always be, the exception and not the rule. Taught by one sort or another of subject-study method, and failing to see, much less to feel, direct relationship between what they have studied and what they are likely to be and do in life, too many have "failed in their studies." Their school traditions have been traditions of defeat.

If anything can efface the depressing memory of such traditions, by establishing traditions of school success, it is believed that the project method of vocational education can do it. And probably no field for this is more favorable than that of agriculture.

Boys, especially farm boys, like the open. They are curious about plants and animals. They readily come to know them. They like to possess them. When school begins in the open and ends there; when in the schoolroom are found undreamed-of guide books to more wonderful and intimate understanding of the already

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familiar objects of the open; most of all, when the school teacher meets the boy where his interest is keenest, and shows him how to turn his possessions, or those of his father, to better economic account—then schooling becomes a new experience to the boy. It becomes part of his life, not something apart from it. Traditions of success in school become possible of attainment. They become for the majority inevitable. Than this, project study can, perhaps, hope to achieve no finer result.

18. PROJECT STUDY PERSPECTIVE.

Looking back, now, over the project and part-time plan of vocational agricultural education, as analyzed and expounded in the report on "Agricultural Education" of the board of education to the Massachusetts Legislature of 1911, and in the present discussion, two facts should stand out in clear relief. Certain kinds of projects are elective; others are prescribed. Each of these two sorts of projects reveals the relative proportions and importance of the other.

(1) **"Improvement" and "experimental" projects desirable.**—The projects termed "improvement" and "experimental" offer excellent incentives to project work and to project study.

The first may contribute most toward the training as a whole by being confined to projects which appeal to, and tend to develop, the pupil's sense of attractiveness, order, and fitness, in farm-home appointments and surroundings. These will touch his pride.

The second may make its best contribution by appealing to, and nurturing, the element of daring—the tendency of youth, even at some personal risk, to get out of ruts. Appropriate projects for the second are to be found by following the best leadership in animal and plant feeding, in plant and animal breeding, in selection of plant and animal foundation stock in the light of comparative records of production, and the like. Such projects will arouse his courage.

Both will have pronounced values as elements of vocational agricultural education, for both will be directly aimed toward a more favorable farm inventory and toward considerably increased farm profits. Both, moreover, may be made to contribute as much to community as to private betterment and well-being.

(2) **"Productive" projects fundamental.**—First and without fail, however, in vocational education should come the projects termed "productive."

The scale of the improvement and experimental projects may be modest. The scale of the productive projects must be extended, occupy as much as possible of the time and engage as much as possible of the energy of the pupil. Entering upon a productive project should be an indication of the pupil's determination to go just as far as he can in any given year, not only toward learning how to

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become a self-respecting and self-supporting producer of farm products, but also toward putting that knowledge into practice.

Vocational agricultural education, in short, means, if it means anything, the constant interworking of ideas and action. It means the educational unity of two practically simultaneous processes, the processes of *earning* and *learning*.

The logic of making the productive projects fundamental is the logic of life. First, man must provide his subsistence; next, a surplus for barter, sale or other use. Then out of his surplus he may rightfully take risks, or make nonproductive investments of time or capital. And this holds true no matter how slight the risk, nor how modest the nonproductive outlay.

Happily, projects primarily productive, involving, as they must do, considerations of quality no less than those of quantity, are not without vital elements of training in attractiveness, order, and fitness. Moreover, the boy's success in his enterprises aimed at profit is more than likely to be directly proportionate to his daring enlistment under the leadership of the newer agriculture. Productive projects alone, therefore, may contribute to the education of the pupil something of those elements which are the more direct aims of projects termed "experimental" and "improvement."

The agricultural instructor, in laying out or in approving projects to be undertaken by his pupils, will, therefore, make no mistake. His primary concern must be vocational agricultural education, through productive projects. Productive projects may, in any given year, and at a pinch in all years, be taught to the exclusion of all others. "Improvement" and "experimental" projects, where found feasible, are desirable. "Productive" projects are fundamental.

19. SUGGESTIONS FOR THE AGRICULTURAL INSTRUCTOR.[1]

(1) **Projects.**—Suit the size of the project to the capacity of the pupil. Then require good work.

A. Not too small.—Speed up the boy's work by making his project big enough to require attack and dispatch for its competent execution. Make it so big as to avoid all tendency toward habits of dawdling and pottering. Let it be big enough to arouse his enthusiasm by making the profit he may reasonably expect to get appeal to him as being a real prize. Make the project big enough so that a competing job shall not get the boy away from school. In short, let each boy's project be such that it shall serve, not an avocational but a vocational end of commanding importance.

B. Not too big.—At the same time do not permit a boy to undertake more than he can carry out in a thoroughly workmanlike manner.

[1] These suggestions were, of course, addressed directly to the vocational agricultural instructors in Massachusetts. It may be remarked that these men are showing excellent ability in putting them into effect.

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If slow work is likely to be finical, fussy, and uneconomic, slovenly work is discreditable. Good habits of work should be formed and bad habits either avoided or sharply corrected. Projects just within the grasp of the boy may be, and should be required to be, capably carried out.

(2) **Project clothes.**—Require that all project work shall be done in working clothes. Provide lockers for the ordinary school clothes and shoes, and require a change of dress when project work is to be done on the school premises. Provide, also, conveniences for cleaning up after the work is done.

This should be looked upon as a perfectly reasonable rule the nonenforcement of which would be absurd and must make the project work appear ridiculous.

Require, also, that jumpers and overalls shall be regularly laundered and decently kept.

(3) **Project records.** *A. Work records.*—Require exact records of work done; also, of all other items of outlay and income. Require that these records shall be made on the form approved by the board of education, and that the daily detachable sheet shall be handed in at the first school session following the day when the work is done, or any other items recorded.

Preserve these daily records for such inspection as may be made, or for such summarized reports as may be required, by the agent of the board for vocational agricultural education.

B. Study records.—Require evidence of project study in notebooks kept by the pupils. The form of notebook suggested above has the merit of keeping steadily before the eyes of the pupil the kinds of project knowledge with which he is dealing and their relations.

Another form of notebook may be found more useful to the instructor and about equally good for the pupil. This form, also, is now in successful use. The right-hand page in this case is reserved for materials found by guidance of the second column of the project-study outline. The left-hand page is divided into two about equal columns. Of these, the first is used for the working rules, or plans and specifications of the pupil; the second, for the authorities consulted, whether in print or in person. When the instructor desires to assign a pupil new references, he finds it very convenient to be able to review at a glance, in the column specially reserved for them, the authorities already consulted.

The particular form of notebook, however, is but a means. The desired end is clear evidence of sound thinking. The pupil, in some form of notebook, should be required to reduce his approved agricultural ideas to writing, because this will be one of the best forms of evidence that his training is placing such ideas at his command.

The agent of the board will desire to inspect these project-study records of the agricultural pupils; but, quite apart from their value

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as evidence for State aid, these records should be kept with such care as to be of permanent value to the pupils themselves in their future unsupervised farming projects.

C. Photographic records.—Use a camera. Records by photographs are convenient. They may be readily filed and compared. For printed reports or public exhibitions they are interesting evidence of work done; and as evidence of equipment, methods, and results they are, when taken by the supervising instructor, both illuminating and convincing. The eye of the camera is faithful. Credit is given where credit is due. The eye of the camera is also inexorable—it neither condones nor forgives.

Home surroundings, for example, may in one respect or another be bad, yet the instructor's photograph may be the first vivid means of showing the boy his home as others see it—his home as it is. On the photograph, or by its aid, the boy may select modest projects for improvement which are to be carried out within the first year; others, within the succeeding years of his school course. Later photographs will show that he has done what he planned to do toward making his home what, at his hands—considering the boy's age, strength, and resources—his home ought to be.

In many neighborhoods the best types of live stock, for another example, can only be shown the pupil by aid of illustrations in farm papers or in books. It will add not a little of interest and value to the instruction of the pupil if, in addition to comparing, for example, the boy's best cow with the highest record queen of her breed and type, as shown in a book or paper, a photograph of his cow taken from the same point of view as that of the illustration be placed side by side for comparison with that of the queen. The boy may thus be made to see the more vividly what to work toward in his future buying or breeding. Photographs of farm products of unusual excellence may endure long after the products themselves have been sold or consumed, and may afford the only means of comparing the form and appearance of products one year with those of earlier or later years. For educational purposes such photographs add vastly to the value of records dealing with types, yields, and comparative results in farm production.

The architect uses a camera for record of the ground on which, and of the surroundings among which, his proposed building is to be placed. The landscape architect uses a camera in order that he may the more effectively work from existing grades, contours, and planting to the final grouping of trees and shrubs, contours and grades which his design will establish. Even in athletics the crew and football coaches find the camera a faultfinder and a praise-bestower more convincing on one hand, and more inspiring on the other, than their strongest words. The traveler records now in

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photographs more often than in journals the things he has s done. Camera records are widely valued.

If the camera may be an inexorable revealer of agricultura it is evident that it may also be made a faithful revealer of tural virtues. In short, a camera, used in connection with ea instruction from the beginning to the end of each boy's cour be looked upon by the sympathetic instructor as one of h important aids, not merely in faithfully recording the home of his pupils, but also for inspiring and sustaining the highe of project work and project study.

D. Certification records.—Keep a record of each pupil, your opinion as to his capacity for planning farm work and in farm operations. Keep the kind of record which would you to recommend a boy for a particular job, if he were school before graduation; or for a more responsible job, if to complete the full course.

Make a list of the things the most capable boy may be tr do in matters of farm routine. Then test each boy from time, and check to his credit those items on your list for w shows you that he should receive credit. Include such items a to harness a gentle horse, to harness a horse that is notion exactly vicious, to harness a pair of horses, and for various p to plow, to cultivate, to mow by hand and by machine, to cleanse and sterilize utensils, to keep down the numbers of in milk by care of stable, cows, and his own person and c to prune and to spray; to size, to pack, to store, or to sell fr vegetables. Include items as to his habits, such as whether he rises early without calling, or promptly when called, is punctual, and reliable in doing chores, is a willing worker, and

Make your certification records progressive. Let them around the groups of projects published for given years, and year by year from group to group. By the end of each boy' you will thus know from your own observation what each capable of doing.

Finally, as your knowledge of each boy grows, reduce you to writing. Put it in a form which may become part of the nent records of your agricultural school or department. Suc manent, intelligent, and clear-cut record is due both instruc pupil.

E. Project bookkeeping.—Require that an accurate accou be kept of every item of outgo and income, including proper for the boy's own labor in connection with every project und by a pupil (see above, pp. 32, 42). Set a proper example by a corresponding account of the productive operations condu your school or department.

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Require entries to be promptly made, so that at a moment's notice a daily balance, a weekly balance, or a balance from the beginning of any given project may be struck. The project "Daily Report" blanks before mentioned may be made to serve as a "day book," from which the balanced accounts may be made up.

Check these accounts for accurate figuring. Drill may be given by requiring each boy to refigure and check up the accounts of his classmates. Even the drill in mathematics will thus be dealing with going productive enterprises, which, in the end, must show an even balance between expenditures and receipts, a profit or a loss.

(4) **Project outlines.** *A. Ask questions.*—Support, guide, and check the project work of your pupils by appropriate and directly pertinent project study. In organizing your teaching materials, whether found in books, in laboratory experiments or other tests, or in things seen and done outside the classroom, adopt the question method. Avoid to the fullest extent, however, leading questions, questions which suggest an answer " yes" or "no." Ask questions which require study, thinking, and perfectly explicit written or oral replies. Ask questions to which most of the boys ought to find answers. Include now and then a question for your most capable pupil. Begin with questions vital to the success of the projects in hand.

B. Cover the needs of every boy.—By making the outline of questions full enough to cover the project needs of every boy in the class, certain questions may be marked, and others omitted, for individual pupils. A single outline will thus serve the entire class.

Be sure that each boy's project-study record is correct on all points necessary to the success of his particular project. Your questions will thus insure clear thinking, accurate statement, and properly planned work.

C. Make outline overlap outline.—Things frequently and distinctly recalled are best remembered. Study overlapping of reference materials in your outline making as aids to thorough reviewing and to facility in statement. Answers composed with much labor and difficulty at first may thus finally be made easily and promptly. Do not overlap your outlines too often nor too much.

D. Make outline overlap textbook.—Make your outlines not only overlap one another, but also overlap the approved textbooks used for the "agricultural survey" instruction. The pupil's knowledge will thus become well knit. You can hardly make your outlines and your textbooks excessively overlap.

E. Refer to illustrated matter.—Remember that in most cases your boys are likely to be active and practical in their interests and abilities, rather than "bookish." Therefore, in your outline making refer wherever possible to pages which illustrate the points of the

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text by diagrams and photographs. You may thus make ass doubly sure that the pupil shall get the fact or principle whi send him to get.

F. Make outlined study lead to un-outlined.—Of course, a maj must be so to instruct a boy by formal guidance that he shal by little, come to find himself at home among agricultural bulletins, and current literature. To be able to find one references and information on any given question is an imp result of good education.

In connection with the study of certain questions, therefo every boy now and then to find material by consulting the or table of contents of some book purposely omitted from the p study outline. In like manner require every boy to consu agricultural papers with particular reference to his project, a are received from week to week.

Moreover, require each boy to begin the use of a card index ing information of peculiar value and interest to himself; an system of filing, and finding again, such notes, clippings, an bulletins as each boy may be helped to accumulate for his use and possession.[1] The agent for agricultural education glad to advise instructors as to the uses of such an index and

Finally, send every boy home every day with a good agric book, bulletin, or report bearing on his home project; also, definite problem to work out, or a fact or principle to find, wh it does not require it, shall at least attract to the boy's aid the ation of his father or some other member of the household this means the boy's interest in his project may be greatly enh Incidentally by this means, also, all members of the famil become participants in the educational work of the departm school. In sending books home be sure to include those whi illustrate, with diagrams and photographs, the matters to be s and reported upon.

All this will be effective training of the power of the pup independent study and for study at home.

G. Prepare outlines ahead.—Devote one-fourth of the day o in summer to the preparation of outlines for use during the fal The period free from teaching and supervision in winter is ex to three months for the express purpose of promoting the profe improvement of the agricultural instructors. Two-thirds period is expected to be devoted to this purpose, and, until o covering the needs of a given school or department have bee

[1] For the purpose of introducing an indexing and filing system suited to farming, the Libra Boston, has agreed to put together and deliver at cost to agricultural pupils and instructors an ou has been used successfully for several years by practical farmers, and is now known by the na cultural Project Study Index and File."

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pared, the instructor is counseled to use a large part of this time for making or improving outlines for use during the spring term. Thus the labor of outline making during the actual teaching terms may be reduced and time gained for laboratory and shop preparations.

(5) **Approval and cooperation.** *A. Submit outlines for approval.*—The Massachusetts law requires that State aid shall be based upon approval of methods of instruction by the board of education. It is believed that the most satisfactory plan of approval is that of "approval in advance." Instructors are requested, therefore, to submit their project-study outlines for approval as soon as they are drawn.

Outlines like those suggested in Chapter III, above referred to, are approved. Provisional drafts may be made in duplicate by use of carbon paper or any other distinct duplicating device. As soon as made a copy should be mailed to the agent of the board of education in charge of this training. Provided the outline is like those above suggested, instruction may then proceed in accordance therewith pending receipt of advice to the contrary.

B. Be prepared to meet other instructors from time to time. Conferences will be called, now at one school or department and again at another, where efficient project methods are in operation. By observation and discussion each may profit from the experience of others, and thus the entire service may from year to year be improved. Therefore be prepared to discuss and to demonstrate your best methods and results for the benefit of other instructors when called upon to do so.

C. Cooperate in outline printing.—Considerable variation in the excellence of outlines is to be expected. The enthusiast for poultry keeping may be expected to produce the best study outlines for project work in this field; the enthusiast for dairying, the best outlines for dairying; the enthusiast for fruit growing or vegetable growing, the best outlines for study in these fields; and so on through the several fields scheduled for agricultural project training.

The board of education will from time to time print outlines prepared by individual instructors, or will combine outlines prepared by more than one instructor in a given field and print them. Due credit for such outlines as may be found of sufficient merit for this purpose will be given their authors. The best outlines produced anywhere in the service may thus be made available for the improvement of the service everywhere. The hearty cooperation in outline making of all participants in this new type of teaching will be for the individual benefit of every man engaged in it; and, without any misgivings as to the willingness of any instructor to do his part, such cooperative effort is therefore most strongly urged.[1]

[1] See footnote, Chapter III, p. 57.

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As a direct aid to harmony of action and rapid progress, a cultural Project Study Bibliography" has been printed as No. 10 by the Massachusetts Board of Education.[1] It is pr explanations and directions as to its use. By adopting uni all the schools and departments the numbers for reference therein assigned outlines may be prepared with the mir labor, and when printed will be interchangeable and may b common. Then, as before suggested, in order to adapt a perfectly to the needs of a given pupil, it will only be nec the instructor to mark on that pupil's copy the refere suited to his particular productive farm enterprise and p comprehension.

20. CONCLUSION.

The suggestions to the agricultural instructor just give first sight appear to be counsels of perfection difficult, if n sible, of execution at the very outset of this new under State-aided vocational agricultural education.

Nevertheless, in view of the foregoing discussion, they are to show the precise direction to which the development of t ing should be kept. Furthermore, and finally, by aid of the of class organization and individual instruction heretofore it is believed that the earnest and diligent agricultural i will, sooner than he may now expect, find himself capable of out these suggestions exactly and in full.

[1] See Chapter IV for a reprint of that bulletin with the addition of a few new ent

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Chapter III.

PROJECT STUDY OUTLINES FOR VEGETABLE GROWING.[1]

SUGGESTIONS FOR INSTRUCTORS IN MASSACHUSETTS STATE-AIDED VOCATIONAL AGRICULTURAL SCHOOLS AND DEPARTMENTS.

Of admirable agricultural textbooks, reference books, bulletins, reports, papers, and periodicals, there is now almost a superabundance, and the supply is steadily growing.

The principal problem, therefore, of the agricultural instructor, responsible for putting into effect the Massachusetts plan of home-project or part-time vocational agricultural education for boys over 14 years of age, is the problem of making selected portions of this literature available for his particular boys and their particular projects.

The present chapter discusses one field of agricultural project instruction, and this with special reference to the work and study of first or second year pupils. It suggests outlines following which the pupils may prepare themselves directly for their work; and, at the same time, be taught how to gain from all sorts of reference authorities stated items of desired information.

Outlines like those suggested have proved to be useful models. They show the economy in outline making of using numerals instead of titles in referring to reference literature. The heavy-faced numerals are the numbers assigned to certain titles in the "Agricultural project study bibliography," published by the Massachusetts board of education and reproduced in revised form in Chapter IV of the present bulletin. The numerals in lighter-faced type refer to pages.

It was strongly urged that the numbers assigned the titles in Chapter IV be adopted by all the vocational agricultural libraries in Massachusetts, so that, as future outlines were made, these outlines might be interchangeable and serviceable throughout the system.

Outlines modeled after those here suggested, and applied to the various other fields of agricultural project study, are being approved.

[1] This chapter reproduces the substance, but does not exactly reproduce the form, of materials first published as Bulletin, No. 5, 1912, by the Massachusetts board of education.

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1. PROJECT STUDY AND VEGETABLE GROUPS.

What number of vegetables may a boy safely undertake to grow? How and in what order should the vegetables he grows be studied? These problems are dealt with in the following discussion:

(1) **Possible classifications.**—A careful study of the botanical characteristics, uses, and methods of cultivation of any considerable number of varieties of vegetables will disclose the fact that vegetables naturally fall into different groups, each distinct in important respects from others.

Vegetables have been classified by their food parts under such headings as the following: "Roots we eat," "Leaves we eat," "Seeds and seed pods we eat." To these three groups might well be added, "Stalks we eat" and "Plants we grow for garnishes."

Vegetables have been classified, also, according to the date of planting or earliness of maturity in the open, as, "first early," "second early," "third early," "fourth early," or "late."

Again, vegetables have been classified according to certain botanical characteristics. Under this classification "early" and "late" vegetables may be found in the same group; also, vegetables in a given group, as, for example, those of the parsnip family (*Umbelliferæ*), may differ radically as to their food parts, and run from roots we eat to edible leaves and seeds. The parsnip family includes even the most important garnish plant. Our garden herbs and vegetables belong to at least 17 plant families.

(2) **Possible varieties.**—The following varieties of vegetables have been successfully grown in Massachusetts home gardens, and are believed to be among those which are suitable for project work and study. The arrangement is alphabetic, and throws no light upon choice of preferred varieties where two or more varieties are given.

Asparagus:
- Giant Argenteuil.
- Palmetto.

Beans, green:
- Bountiful.
- Burpee's Stringless.
- Burpee's Stringless Green-pod.
- Early Red Valentine.

Beans, pole:
- Arlington Red Cranberry.
- Dreer's Improved Pole Lima.

Beans, shell:
- Dwarf Horticultural.

Beans, wax:
- Golden Queen Wax.
- Refugee.
- Wardwell's Kidney Wax.

Beets:
- Crosby Egyptian.
- Detroit Dark Red.
- Eclipse.
- Edmand's.

Cabbage:
- All Seasons.
- Curled Savoy.
- Danish Ballhead.
- Jersey Wakefield.

Carrot:
- Danvers Half Long.

Cauliflower:
- Snowball.

Celery:
- Giant Pascal.
- Paris Golden.

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ry.
untry Gentleman.
lden Bantam.
iincy Market.
owell's Evergreen.
ber:
lington White Spine.
vis Perfect.
lion:
proved French Thick Leaved.
nt:
ack Beauty.
ew York Improved.
e:
oad-Leaved Batavian.
een Curled.
abi:
rly White Vienna.

rentan.
e:
ack Seeded Simpson.
ck Seeded Tennis Ball or Big
Boston.
eacon.
lamander.
elon:
nerald Gem.
iller's Cream.
ocky Ford.
:
ellow Globe Danvers.
:
lington Double Curled.
ps:
obott Hollow Crown.

Peas:
- Gradus.
- Gregory's Excelsior.
- Surprise.
- Telephone.

Pepper:
- Ruby King.
- Sweet Mountain.

Potatoes:
- Green Mountain.
- Irish Cobbler.

Radish:
- Early Scarlet Globe.
- French Breakfast.

Rhubarb:
- Linnaeus.
- Victoria.

Salsify:
- Mammoth Sandwich Island.

Spinach:
- Long Standing.
- Round Thick Leaf.
- Savoy-Leaved.

Squash:
- Crookneck.
- Early Prolific Marrow.
- Hubbard.

Tomato:
- Bonny Best.
- Chalk's Early Jewel.
- Earliana.
- Stone.

Turnip:
- American Rutabaga.
- Early Milan.
- White Egg.

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(3) **Classification by methods of cultivation.**—The followi
fication of the foregoing varieties of vegetables is based on
methods of cultivation and will probably best serve the pu
project study:[1]

Class I. Annual Vegetables.
- Subclass I. Crops grown for Subterranean Parts.
  - Group 1. Root Crops.
    - Beet, *Beta vulgaris.*
    - Carrot, *Daucus carota.*
    - Parsnip, *Pastinaca sativa.*
    - Radish, *Raphanus sativus.*
    - Salsify, *Tragopogon porrifolius.*
    - Turnip and rutabaga, *Brassica.*
  - Group 2. Tuber Crops.
    - Potato, *Solanum tuberosum.*
  - Group 3. Bulb Crops.
    - Onion, *Allium Cepa, A. fistulosum.*
    - Leek, *A. Porrum.*
- Subclass II. Crops grown for Foliage Parts.
  - Group 4. Cole crops.
    - Cabbage, *B. oleracea.*
    - Cauliflower, *B. oleracea.*
    - Kohl-rabi, *B. oleracea.*
  - Group 5. Pot-herd crops (used for "Greens").
    - Spinach, *Spinacea deracea.*
    - Beet, *Beta vulgaris.*
    - Dandelion, *Taraxacum officinale.*[2]
  - Group 6. Salad Crops.
    - Lettuce, *Lactuca sativa.*
    - Endive, *Cichorium Endivia.*
    - Celery, *Apium graveolens.*
    - Parsley, *Carum Petroselinum.*
- Subclass III. Crops grown for Fruit or Seed Parts.
  - Group 7. Pulse crops.
    - Bean, *Phaseolus, Dolichos, Vicia.*
    - Pea, *Pisum sativum.*
  - Group 8. Solanaceous crops.
    - Tomato, *Lycopersicum esculentum.*
    - Eggplant, *Solanum Melongena.*
    - Pepper, *Capsicum annuum.*
  - Group 9. Cucurbitous or vine crops.
    - Cucumber, *Cucumis sativus.*
    - Melon, *C. Melo.*
    - Squash, *Cucurbita.*
  - Group 10. Corn.
    - Sweet corn, *Zea Mays.*

Class II. Perennial Vegetables.
- Asparagus, *Asparagus officinalis.*
- Rhubarb, *Rheum Rhaponticum.*

[1] The outlines of this classification were proposed a decade ago in "Principles of Vegetabl
pp. 240–242, by Prof. L. H. Bailey, and have been followed in one of the latest studies of the s
table Gardening," 1912, pp. 196–199, by Prof. R. L. Watts.

[2] This is a perennial, but when grown in a garden does not occupy a given piece of groun
year.

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) **Varieties of vegetables per pupil.** *A. Desirable range.*—Glancing the above list (2) and classification (3), embracing some 75 varie- nd 11 groups, it would appear to be desirable that each boy ld grow and study at least one variety from each group. The number of varieties dealt with would then be 11, and, within in groups, would permit of a considerable range of choice for ng the tastes of the boy or the likings of his family.

Surplus for sale.—For testing his results by the strictest com- ial standards, each boy, in addition to growing certain varieties of ables in sufficient quantity for supplying the summer and winter s of his family, should be encouraged, if not required, to grow at one variety on such an extended scale as to yield a surplus for If his family were in modest circumstances, and could only him credit at current prices for vegetables produced for home his surplus might make his biggest crop his only cash crop. It ot be doubted that the prospect of cash returns must be con- ed a most powerful incentive to competent, persistent, and igent project work and project study.

Experience as a guide.—Of course there is great variation in city for fruitful study and competent garden work; but even ren under 14 have successfully produced in school-garden work than a half-dozen varieties of vegetables; and boys of sec- ry-school age, when giving only part of their time to such work, produced, with clean culture and profitable results, fully twice any.

Judgment of the instructor.—It is evident that the number of ties per pupil must be left to the instructor. He must exercise est judgment in approving the number, as well as the sorts, of ables to be grown.[1]

here individuals have little or no preference as to the variety n a given group, one pupil may be assigned one variety, other s the other varieties. Where there is school land, varieties not n for home growing may be grown at the school. Thus the work, , and observation by the whole class may be made to cover y, if not completely, each entire group.

e 6-variety boy should not be permitted to undertake 12 varie- nor should the boy capable of completing a 12 or 15 variety ct be permitted to stop short at a 6.

J. H. Fay, a teacher of experience in project instruction and home work supervision, thus sum- the situation as he sees it:

e varieties to be chosen should be adapted to the soil, exposure, and location of land on the farm.

e varieties should be those most easily grown with success.

varieties serving the most useful, economic, and instructive purposes.

those sorts best suited for local sale or home consumption.

n to have the boy's home gardening supplement and improve the present kitchen garden; or where s not exist, or is very inferior, make it of such a nature that its value will be realized and permanency

eld projects of a commercial nature are the ones in view, then local conditions as to soil, markets, l again determine the varieties to be selected.

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2. PROJECT STUDY BY VEGETABLE GROUPS.

(1) **A practical approach.**—Since productive work o farms of the pupils is such a fundamental feature of the part-time method of agricultural education, there are ob tages in the above classification of vegetables by meth vation.

(2) **Aid to garden planning.**—Familiarity with the gen requirements of the various groups is necessary to the fir steps in home-garden planning. These requirements a various authorities. The following notes are from P "Principles of Vegetable Gardening," pages 271–433:

Group 1. Root crops require a cool season and deep soil. They are and usually are not transplanted. They are used both as main-season crops. All are hardy. No special skill is required in growing them.

The necessity of deep soil is apparent when one considers that the depends to a large extent on its straightness or symmetry. In hard a roots are short and they tend to be branched and irregular. Fine tilt insure quick growth, and quick growth improves the quality.

Group 2. Tuber crops. The potato.—Deeply pulverized cool soil, capillary moisture and rich in potash, deep and early planting, level c surface tillage to conserve moisture, spraying to insure healthy fol requisites of the best potato culture. The potato is propagated by m It thrives best in a relatively cool climate; in the South it is successful and fall crop, for the midsummer season is too continuously hot.

In most cases a heavy yield of potatoes is largely a question of mois

Group 3. Bulb crops.—All the bulb crops are hardy, require a cool se rich soil, with a loose surface. Usually they are not seed-bed crops. both as main-season and secondary crops. They are propagated by bulbs. These crops are grown chiefly for the underground bulbs are often used in stews and seasonings).

Group 4. Cole crops.—All cole crops are hardy and demand a cool and abundance of moisture at the root. Except the kales and kohl-ra bed crops, and even kales are often started in beds. Each plant requi space in order to develop well. Cole crops are grown for the vegetat rather than for fruits or roots.

Group 5. Pot-herb crops.—Pot-herb crops, or "greens," are grown f therefore they must make quick growth in order to be crisp and tend must have good surface tilth and much available plant food; the applic nitrogenous substances is usually important, particularly when the gr completion. Most pot-herb crops demand a cool season, and nearly partial-season crops, and are therefore treated as succession or compani

Group 6. Salad crops.—As a general statement, it may be said th require cool, moist soil and a quick continuous growth if the best resu They are often benefited by a special application of quickly avai during growth, particularly of nitrogen in those species which are desi quick growth of leaves.

Group 7. Pulse crops.—Botanically peas and beans are very close they have few points in common from the cultural point of view, since cool-season plants and beans are tender, warm-season plants. Both crops, and are therefore capable of using atmospheric nitrogen. A however, they may need applications of nitrogen in order to secure a q

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ticularly if an early crop is desired. "It is frequently the wiser economy to apply nitrogen, particularly if they are raised upon land which has not been previously planted with these crops and thus may not possess the specific nitrogen-gathering bacteria." (Voorhees' Fertilizers, p. 269.)

Peas.—Peas are a partial-season crop, requiring cool season and a soil not overrich; seed is sown where the plants are to stand; grown in drills, hardy.

Beans.—Garden beans represent several species, but all the common kinds are very tender to frost and require a warm season and sunny exposure; seed is sown where the plants are to grow; usually grown in drills, except the tall kinds; the common bush beans are partial-season plants.

Group 8. Solanaceous crops.—Tomatoes, eggplants, and their kin are hot-season plants. They require nearly or quite the entire season in which to mature. Usually they grow until killed by frost, at least in the north, and the production of a heavy crop depends largely on securing an early start. They are seed-bed crops, and they need abundance of quick-acting fertilizers applied relatively early in their growth. They are grown in hills.

Group 9. Cucurbitous or vine crops.—Cucurbitous crops are annuals, grown for their fruits; they are tender to frost; they require a warm season and a full exposure to sun; they are long-season crops, and with most of them a quick start is essential in order that they may mature the crop before fall; they are grown in hills, as a main crop; they are planted in the field or in frames, depending on the region and the period at which the crop is wanted; they transplant with difficulty, and if the plants are started in advance of the season they are grown in pots, boxes, or on sods.

Group 10. Corn (other names omitted).—The plants here mentioned are all warm-weather crops; they are annuals, or grown as such, and they are cultivated for their immature fruits; they should have quick soil; usually they are not transplanted; other than good tillage, no special treatment is required.

Group 11. Perennial crops.—The management of perennial crops differs from that of other vegetable-gardening crops in the fact that they are more or less permanent occupants of the ground, and therefore must be given an area to themselves, where they will not interfere with the customary plowing and tilling; in the fact that the chief tillage and care are required early and late in the season; and also because the fertilizing is secured chiefly by surface dressings in spring and fall.

(3) Good but inadequate.—This knowledge of the cultural requirements by groups above given affords a practical approach to vegetable gardening. It probably will enable a boy to decide what groups are suitable for his land, and, therefore, what he may hope to grow for his family or cash crop. It may, consequently, be sufficient foundation for the boy's preliminary garden sketch. A careful examination must show, however, that almost everything is yet to be learned as to the individual cultural requirements of the vegetables which the boy selects for his project work.

Accordingly, only so much time should be given to the study of vegetable groups as may be necessary for reasonably intelligent selection of the varieties which are to be grown. In fact, so much knowledge may well be to a large extent a gift from the instructor to the class as a whole.

3. PROJECT STUDY BY VEGETABLE VARIETIES.

Thorough going project study will begin when the individual pupils settle down to the study of the particular vegetables which each has

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decided he would prefer to produce. Such study will necessita formulation of project-study outlines for the chosen vegetable

It probably will always be the case that a considerable num varieties will be selected by the entire class, while other varieti be selected by but part of the class, perhaps by but a single Project study would better begin with those varieties with wh are to work. The outline making should, therefore, begin with varieties which are to be grown by all. Outlines for the rem varieties may then be made.

Elsewhere[1] a project dealing with a staple vegetable, som grown in the garden and grown sometimes as a field crop, ha carefully analyzed for the purpose of showing the charact extent of the project study pertinent to a single crop.

Two examples of project-study outlines will here be given. will show project-study materials organized for classroom an vidual instruction, in connection with home gardening projects first outline determines the precise object of the project; its whether modest or more ambitious; and the things to be d general preparation of the land, etc. The second deals with ticular vegetable. Moreover, since the vegetable elsewhere an is a staple article of food, namely, the potato, the vegetabl chosen is a salad plant.

Lettuce, the vegetable selected for the second outline, might it will be seen, a most excellent purpose for introducing the st vegetable growing. Here are some of its advantages for such It is an attractive home crop and a very important cash cro may be grown in the house, in a hotbed, cold frame, or green or in the open; among the earliest vegetables, among the late for a continuous summer supply; or to keep the land busy as panion or succession crop in connection with other vegetabl teaches the importance of abundant feeding and watering as mental to both quantity and quality. It naturally singles o study one of the most important elements of plant food. Si connection with it the first labor is likely to be performed, th seeds, fertilizers and tools used, and the first product disposed the family for credit or to the public for cash, it is one of th vegetables for initiating the keeping of records and accounts.

It will be seen that these outlines overlap slightly at certain p The wise instructor will make a careful study of such overlapp his outline making. He will find therein fruitful opportunit reviewing important elements of both principle and practic aids to similar reviewing, references will be found to the app textbooks used by the pupils in their "agricultural survey" in tion.

[1] Compare 74th annual report, for 1909–10, of Massachusetts Bd. of Ed., pp. 248–252; also, Yearbook of the National Society for the Study of Education, pp. 47–50.

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, at first glance, it should be feared that the second outline is too it should be understood that no pupil is expected to look up y reference under every question. Further, it should be under- l that certain questions of agricultural science which a given uctor intends to treat in connection with the growing of other tables may, at that instructor's discretion, be omitted or hed upon but lightly in connection with lettuce. The effort here show a good form of outline for use, not only by a whole class in given school or department but by all classes throughout the e vocational agricultural education service in Massachusetts.[1] atter suggested as desirable, particularly for the study of the capable pupil, under the heading "Broader results, project- y record diagram," figure 3, Chapter II, has been dealt with in ollowing outlines in footnotes. Such questions as those in the notes may be omitted by all save the most exceptional pupils. e first outline immediately follows; the second begins on page 62.

(*1*) *Suggestive project-study outline—Kitchen gardening.*

Project: Kitchen gardening.

Object, Scale, and First Steps of Projects.

ing questions for ning this project.	Guiding questions for studying and understanding this project.
l you grow vege- bles? [2]	(1) What are the advantages of a good home garden? **1:** 187–188 **5:** 325 **13:** 5–6 **16:** 3–6, 8, 11 **25:** 335 **27:** 10, 12–16 **39:** 3, 490 **40:** lff. (2) Could you sell part or all of your product outside the family?
re shall you grow em?	(1) Where was the home garden last year? A. Did the vegetables grow well in it? B. Was it large enough to supply the family or were such vegetables as winter squashes and potatoes grown as field crops? (2) May it be desirable to change the location of a garden or of the place of growing certain vegetables in an old garden? A. What is "rotation" and its significance for vegetable growing? **26:** 13 **39:** 493 **276:** 32–34 (3) Which way should the garden slope? **26:** 7 (4) What soil is best for a garden? [3] **1:** 188–189 **26:** 7–8 **27:** 22 **39:** 19, 21f., 25–26, 27

Massachusetts Board of Education now has in the hands of the printer a bulletin of about 115 pages, outlines prepared by the vocational agricultural instructors for their pupils in 1912–13, in which the g vegetables are treated:

Celery.	Parsnips.	Rhubarb.
Cucumbers.	Peas.	Spinach.
es. Melons.	Potatoes.	Sweet corn.
Onions.	Radishes.	Tomatoes.

r bulletins are in preparation, containing project-study outlines on fruit growing, poultry keeping, usbandry, and bee keeping, all of which have grown out of the last year's teaching.

at is "olericulture?" **39:** 1 **276:** 1–6.

at do you know about "portable soil" and renting contracts among small gardeners near Paris? .

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Kitchen gardening—Continued.

Guiding questions for planning this project.	Guiding questions for studying and understanding this project.
2. Where shall you grow them—*Continued.*	(5) May the garden vegetables be part of a field crop? How? Advantage? **1:** 188 (6) Is protection from the wind important? Why? **39:** 14 (7) Is good drainage a necessity? Why? **1:** 189 **5:** 91–92 **13:** 9 **39:** 26 (8) On the whole, what may be considered the best location for a garden? **1:** 188 **5:** 235 **11:** 451 **13:** 6 **27:** 20 **39:** 12–14, 491, 492–493 (9) Shall you grow vegetables under glass? [1] A. What are "hotbeds" and "cold frames"? Cost of construction and operation? **5:** 236–237 **11:** 483 **13:** 12–15 **25:** 145 **39:** 355–356 **276:** 44–79 **747:** 260–253 **876:** 94–96 B. Shall you use a "cold frame"? C. Shall you use a "hotbed"? (10) In view of the above, where shall you grow your vegetables?
3. What kinds shall you grow?	(1) Shall you grow both hardy and tender vegetables? A. What are "hardy" and "tender"? **753:** 159 (2) What is a practical way of grouping vegetables by their cultivation requirements? **39:** 196–200, 241 **276:** 240–242, 271, 301, 314, 329, 347, 356, 380, 392, 411, 423, 429 433 (3) What kinds are liked best by your family? (4) What kind could you sell best? (5) What kinds or varieties, therefore, shall you grow for A. Family use? a. Summer? b. Winter? B. Sale?
4. What quantities shall you grow?	(1) Shall you undertake to supply your family with all of the vegetables needed for the entire year? [2] A. What kinds of vegetables were used on the home table last year? B. What quantity of each was required? C. What were grown at home and what were purchased? D. About what was the total value of the vegetables used in the last 12 months by your family? E. Shall you work alone or in cooperation with some of your family, a neighbor, or a fellow pupil? **16:** 9–10

[1] Open air *v.* hothouse returns, according to Twelfth Census? **853:** 194
[2] What may comparatively small areas produce under the best methods? **5:** 234 **13:** 5 **33:** 9 17 **276:** 31, 35 **853:** 69–100, 118–121, 123, 127, 407–408.

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Kitchen gardening—Continued.

Guiding questions for planning this project.	Guiding questions for studying and understanding this project.
4. What quantities shall you grow—*Contd.*	(1) Shall you undertake to supply your family with all of the vegetables needed for the entire year—*Continued.* F. How large was the garden last year? Sketch outline, give dimensions, and figure area. G. How large a garden will supply a family of five or six? **11**: 454–455 **276**: 31, 35–43 H. In view of the foregoing study, and assuming that a garden should be cultivated carefully about twice a week for the family supply, how large an area shall you undertake to work? (2) Shall you grow a surplus for sale? A. What quantity could be readily sold? B. What would be the cost of marketing? C. In view of the above, what quantity shall you try to produce for sale and what land allowance shall you make?
5. Shall you map your garden?	(1) Advantages of, and materials for making a garden plan? **25**: 8, 24–28, 42 **27**: 21, 23, 25 **271**: 279–284 **753**: 324 **876**: 61 A. What scale shall you use? a. What is "drawing to scale"? B. Shall you show the points of compass? Why? **876**: 61 C. Which way shall the rows run—lengthwise or crosswise? **276**: 31–32 D. Shall the rows run north and south? Why? **25**: 8–11 E. Shall your plans show such double cropping as you have decided upon? a. What is "double cropping"? **39**: 475–489 F. In what part of the garden shall you put low-growing and in what part high-growing plants? G. Shall you observe strictly the rules of "rotation" in locating your deep and shallow rooted plants? H. What are some model kitchen garden plans? **11**: 8–9, 451–454 **13**: 7–8 **16**: 2–28 **25**: 11–14 **27**: 21, 23, 25 **31**: 20–21 **276**: 33, 37, 39, 41
6. How and when shall you prepare your land?[1]	(1) Shall you use stable manure? A. Value of stable manure in vegetable growing? Should it be well rotted? Apply when and how much? B. How should stable manure be stored and handled? C. Should it be thoroughly mixed with the soil? Plowed or spaded under? Or raked, spaded, or harrowed in? **1**: 97–100, 188 **13**: 11 **16**: 30–31, 33–35 **24**: XVII **25**: 4, 5, 7, 112 **27**: 35–38 **39**: 41–42, 49–50, 492 **271**: 275 **285**: 173–181 **616**: 5–32, esp. 16–29 **697**: 113–181 **876**: 56–57

[1] What are motives for fair and square treatment of the land? **1**: 100 **876**: 57–58.

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Kitchen gardening—Continued.

Guiding questions for planning this project.	Guiding questions for studying and understanding this pr
6. How and when shall you prepare your land—*Continued.*	(1) Shall you use stable manure—*Continued.* D. What will your manure cost? (2) Shall you use green manure? A. What is "green manuring"? What are its advantages vantages? **1:** 100 **25:** 16–17 **39:** 53–57 **279:** 349–370, esp. 349, 370 **285:** 171, 183, 185, 186, 188, 189, 191 **876:** 58–59 (3) Shall you use compost? A. What is "humus"? What does it do? **5:** 95–96 **25:** 4, 7, 8, 61, 246, 247, 274, 299, 306 **27:** 22 **278:** 25–26, 31, 35, 67 **285:** 27, 38, 41, 43, 44, 62, 67 **752:** 108–109 **767:** 33, 38, 48, 51 B. What is "compost"? How made? **25:** 17, 18, 34, 61, 112, 113, 152, 306 **26:** 21 **278:** 242, 243 **285:** 171, 181 **876:** 59–60 C. What is "short" manure? Should stable manure be comp **24:** XVIII **27:** 36–38 **39:** 47–49 **276:** 95–96 D. What will your compost cost? (4) Shall you use commercial fertilizer? A. Most lands usually contain sufficient quantities of all sa ments of plant food? **11:** 111 B. What is "commercial fertilizer"? Its uses and its sources **1:** 97–98 **5:** 114–125, 131, 132, 408 **13:** 11–1 **24:** XX **25:** 6, 32–35, 58–71 **39:** 58–65 C. What may be considered an "all-around" fertilizer, or a "bas for vegetable growing? **25:** 33 **276:** 104–106 **633:** 267 a. Shall you use a basic or all-around mixture? b. If so, what will it cost? D. Shall you use commercial fertilizers separately, and not m a. Do certain vegetables prefer particular fertilizers, as, celery, beets, peas, lettuce, cabbages and tomatoes? **5:** 116–123 **25:** 146 **26:** 225 **39:** 235, 250, 270, 312, 356, 411–412, 458–460 **276:** **409:** 64 **633:** 277 b. What shall you spend for commercial fertilizers?
7. Shall you use lime?	(1) Shall you use lime on your vegetable land? A. What is the effect of lime upon the soil? **279:** 304–307

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Kitchen gardening—Continued.

iding questions for anning this project.	Guiding questions for studying and understanding this project.
hall you use lime—*ontinued.*	(1) Shall you use lime on your vegetable land—*Continued.* B. Effect upon the plant? **279:** 302–304 C. When most beneficial? **279:** 307–309 D. How can you tell when lime is needed? **5:** 126 **25:** 7 **39:** 65–66 **279:** 309–310 **752:** 98 **767:** 95–99 **770:** 46–50 E. When, in what forms, and how may lime be applied? **5:** 127–128 **278:** 70 **279:** 302–311, 314 F. Where shall you get your lime, and what will it cost?
ow deeply and thoroughly shall you pulverize your vegetable soil?	(1) It may be assumed that, in deciding the above questions as to plant foods and their application, the dates and manner of plowing and harrowing have been in part determined. Other questions, however, remain to be answered. (2) What is the relation of a thoroughly pulverized seed bed to quick germination and rapid growth? Best tools to use? Best methods of using them? **1:** 74–76, 83–87, 96, 190 **11:** 87–114 **13:** 9–10, 15, 21–22 **24:** XIX **25:** 35–42 **39:** 28–40 **276:** 155 **278:** 91–130 **279:** 390–392 **285:** 90–92, 156–158 **767:** 67–72 **770:** 5–6 **876:** 77–78, 88–89 A. What tools shall you use?[1] a. What have you now? Make a list. b. What must you buy? Make a list. B. What will be your expense for these tools?
lant how?	(1) What are the relative advantages of planting by hand, and with a planter or seed sower? **11:** 117 **16:** 94 **24:** xiii, xiv, xix–xx **25:** 54 **39:** 135, 137 **276:** 163–164 A. Shall you use a planter or seed sower? B. What will it cost you?
ultivate how?	(1) What is the relation of "clean culture" and preservation of a thin "earth mulch" to quality and quantity of vegetables? And shall you use horse or hand tools? **11:** 95–96, 101–107 **13:** 21 **16:** 96–103 **25:** 31–32, 35–37, 38 **27:** 18, 52–56, 157–159 **39:** 358 **276:** 360 **853:** 112–113 **874:** 76–81 A. Are weeds ever beneficial? What are weeds? Are there not better "cover crops"? **409:** 88 **768:** 71–73 B. Should care be exercised in weeding and cultivating? **25:** 37–38 (2) What tools shall you use for cultivating? (3) What will these tools cost? Compare **25:** 32, 36, 37

What do you know about the history and kinds of tillage tools? **5:** 82–94 **25:** 31–32 **271:** 81

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Kitchen gardening—Continued.

Guiding questions for planning this project.	Guiding questions for studing and understanding this project.
11. How gather, care for, and dispose of product?	(1) The questions as to tools, receptacles, etc., required for gathering and disposing of the garden vegetables can be better answered after the individual varieties to be grown have been studied. (2) What means of storage have you, or shall you provide? [1] **11:** 158–161, 475 **25:** 113–119 **39:** 193–195 **274:** 141, 142, 146, 147, 149 **276:** 214, 224–235 **753:** 162–163 **767:** 31–33, 48–79, 80, 81, 86, 87, 109 (3) What salesmanship principles as to attractiveness of person and products, advertising, etc., shall you put into practice in selling your surplus? **5:** 380–383 **39:** 162–192 **276:** 214–224 **753:** 327–328 **761:** 154–160 **850:** 33, 35, 41, 42, 69, 72, 74, 77, 79, 87, 88, 92
12. What accounts shall you keep of your gardening project?	(1) What are proper elements of cost and the best methods of accounting in vegetable production? **5:** 380–383 **39:** 162–163 **276:** 214–224 **465:** 109–138, 139–144, 145–197 **492:** 1–21, 29–41, 82–100 **753:** 327–328 **761:** 154–160 **782:** 157, 159 (2) What account with your family shall you keep? **492:** 143–152

[1] What do you know about the canning and preserving of vegetables? **271:** 157–177.

(2) *Suggestive project study outline—Lettuce growing.*

Project: Kitchen gardening.

Subproject: Lettuce growing.

Guiding questions for planning this project.	Guiding questions for studying and understanding this project.
1. Plant where?	(1) Where have you seen good lettuce growing? Of whom may you seek advice? [1] **31:** 15 A. Lettuce belongs to what cultural class, and what are the soil requirements of that class? **276:** 241 B. What soil is best for lettuce? **39:** 355 **276:** 356, 358–359 **874:** 119 C. At what spot are your soil conditions best for lettuce? How best? **874:** 54–55 (2) Shall you grow lettuce in more than one part of the garden? [2] A. What is companion cropping? **39:** 357–358, 477, 478, 480, 482, 488 **276:** 358 **747:** 257 B. What is succession cropping? **1:** 189 **25:** 13 **31:** 22–23 **271:** 105 **276:** 358–359 **853:** 191–192, 330 **876:** 119

[1] Origin and importance of lettuce? **11:** 483 **25:** 149 **38:** 361 **39:** 351 **276:** 360. Botanical features and classifications? **26:** 223 **276:** 360–361 **285:** 85–86.

[2] Possible returns from double cropping? **853:** 329–331.

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Lettuce growing—Continued.

Guiding questions for planning this project.	Guiding questions for studying and understanding this project.
1. Plant where—*Contd.*	(2) Shall you grow lettuce in more than one part of the garden—*Continued.* C. In view of the above references, what combinations might you make? D. What combinations shall you make? (3) Where shall you start your plants? A. In the house? **1:** 190 **25:** 63–68, 145 **26:** 47 **285:** 51 **767:** 212 **876:** 92–93, 119 B. Under glass? [1] a. What is a cold-frame? A hotbed? **5:** 236–237 **11:** 483 **25:** 145 **39:** 355–356 **276:** 44–79 **747:** 250–253 **876:** 94–96 C. How much time may be gained by starting plants indoors or under glass? **25:** 51–52 **31:** 113 **39:** 355 **276:** 49 (4) How large an area needed? [2] A. In the garden? a. Plants per acre? **851:** 329 b. How may thinnings be used? Relations of such use to area required? **11:** 483 **24:** 152 **25:** 146 **31:** 33 **276:** 359 **876:** 91 c. Your estimate of area needed? B. Under glass? a. What is a "sash"? **276:** 46 b. What is a "frame"? **276** 46 c. Number of lettuce plants per sash? **31:** 113–114 **276** 46 d. Your estimate of space needed under glass?
2. Plant what?	(1) What varieties have you seen or eaten? [3] (2) What variety is best liked by the family? (3) What variety sells best where you might sell your surplus? (4) Is there a better all-round variety than Black Seeded Tennis Ball? Why? **11:** 484 **25:** 50, 130, 131, 144–145, 147 **26:** 225–226 **31:** 24, 33, 113 **39:** 351–354 **276:** 358 **292:** 557–558 **876:** 119 (5) What is your estimate of the quantity of seed needed? **11:** 484 **26:** 46 **39:** 495

[1] What do you know of experimental lettuce growing and its production under glass by market gardeners? **271:** 23–26, 30, 33, 120, 122 **747:** 248–250 **876:** 93.
[2] Heads per acre and possible profit? **31:** 114 **39:** 358.
[3] What are some estimates of the number of known varieties of lettuce? **276:** 361.

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Lettuce growing—Continued.

Guiding questions for planning this project.	Guiding questions for studying and understanding this pro
3. Plant when?	(1) What is a "planting table"? **25:** 327-334, esp. 331 **274:** 106 (2) How long does it take lettuce to mature for table use? **25:** 149 **31:** 33, 113 (3) How early and how late may lettuce be planted? **25:** 144, 146, 149 **26:** 223-225 **31:** 21-22 **33:** 113-114 **39:** 357-358 (4) Should supply be sought for hot months? **1:** 191 **11:** 484 **25:** 147-148 **39:** 354 **276:** 357-359 (5) What is "pricking out" and how is it done? **24:** xxii-xxiii **25:** 145-146 **876:** 94 (6) Does transplanting aid heading? **31:** 114
4. Seed, get when and where?	(1) Shall you use home-grown or purchased seed? [1] (2) Shall you grow your own seed for next year? **26:** 51 **276:** 165-168 **292:** 179 A. Pound of seed from how many plants? **39:** 355 B. What is the appearance of lettuce seed as to size, shape, color or colors? **25:** 149 **38:** 361 (3) Shall you get your seed early and test it? **25:** 52-53 A. What is the relation of a high-sprouting test to high vegetat **276:** 149-154, esp. 151 B. What conditions are required for sprouting seeds? **285:** 70-75 C. Is lettuce seed naturally strong or weak? a. How shall you make a test for percentage of germinatio **1:** 230-231 **5:** 49, 51 **31:** 25-27 **75:** 20 **876:** 87-88 b. Make the test for strength, using lettuce seed instead otherwise following directions given in reference. **285:** 81-82 D. How shall you test your lettuce seed for percentage of imp **5:** 51-52 **876:** 88 E. What is "longevity" of seeds, and how does lettuce seed c other seeds in longevity? **5:** 405 **276:** 133

[1] What is a seed? **279:** 381. Why is lettuce called an "annual"? **31:** 33 **38:** 3 seed is produced where? **39:** 355. Is changing seed ever an advantage? **279:** 384-386.

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Lettuce growing—Continued.

ng questions for ing this project.	Guiding questions for studying and understanding this project.
, get when and ere—*Continued.*	(3) Shall you get your seed early and test it—*Continued.*
	F. Do new and old seeds look alike? **25:** 46 **279:** 388
	G. Is large seed better than small? **5:** 53–54 **279:** 388 **876:** 226–227
	H. How may large be separated from small? **25:** 46
	I. What is the cheapest seed? [1] **5:** 52–53
	(4) Where can you get the highest grade lettuce seed?
	(5) When can it be had?
	(6) At what cost?
lize. with what, en, and how?	(1) Has your garden been heavily fertilized with stable manure?
	A. What is heavy manuring for a garden? **31:** 17–19
	B. How many cords of manure per acre may be used for lettuce? **25:** 145–146 **31:** 113
	C. Has your manuring been sufficient for your lettuce?
	(2) Shall you use a mixture of commercial fertilizers for your garden?
	A. What is a "basic mixture" for vegetable growing? **276:** 104–106 **633:** 267
	B. How apply? **39:** 59–65 **285:** 15
	(3) What special kind of commercial fertilizer gives the quickest and best growth of lettuce? What are the sources of it and symbol for it? [2] **5:** 116–123 **25:** 146 **26:** 225 **39:** 356 **276:** 359 **633:** 277
	A. What is the relation of the quality of lettuce to rapid and continuous growth? **276:** 106 **292:** 178
	B. How, when, and at what rate may nitrate of soda be safely applied? **25:** 146–147 **26:** 27–28 **31:** 7 **39:** 60–61 **292:** 178 **409:** 57
	C. How do plants feed? [3] **1:** 96, 105, 107 **5:** 64–67 **285:** 17–20 **750:** 16–17 **768:** 62–66
	D. Why is a fertilizer which is readily soluble "quick acting"?

at are other seed tests which may be made? **767:** 202–211.
at tests or experiments have you made for noting the presence of nitrogen and its action? What say of its sources and its relations to plants? **1:** 79–80, 98, 100 **5:** 60, 61, 63, 97, 113, 116, 119, , 136, 138, 139, 140, 141 **398:** 226–248 **409:** 10, 11, 20, 37, 43, 49, 87, 92, 97, 99, 105, 108, , 171, 205, 214, 216, 217 **410:** 26–30, 179–184, 339 **747:** 24, 34, 35, 37, 38–40 **761:** **768:** 21–23.
at can you say about the nature and growth of roots? **298:** 39, 41, 45, 49, 50, 60, 61, 62, 77, 82, 160, , 247, 447 **768:** 62–66.

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Lettuce growing—Continued.

Guiding questions for planning this project.	Guiding questions for studying and understanding this pro
5. Fertilize, with what, when, and how—*Con.*	(4) If your lettuce area is small, may liquid manure be used to ad
	A. How prepare it? How control its "strength?" Is it a pla "plant tonic?" **24:** xix **25:** 101–102, 104 **39:** 61 **87**
	(5) When shall you get your plant food supplies?
	(6) What will be the cost of your lettuce fertilizer? Compare **25:** 33
6. Shall you use lime?	(1) Is your land quick?
	A. When is land "quick?" **276:** 85
	B. How may lime aid quickness? **276:** 96 **285:** 149, 200 **876:** 230
	(2) Should lime be used in vegetable growing? How find out? **5:** 126 **25:7** **39:** 65–66 **279:** 310 **752:** 98 **767:** 95–99 **770:** 46–50
	(3) Is lettuce sensitive to soil acidity? **5:** 126
	(4) When and in what forms may lime be applied? **5:** 127–128 **278:** 70 **279:** 302–311, 314
	(5) What will your lime cost.
7. Prepare ground for seed with what and how thoroughly?	(1) What is the relation of a thoroughly pulverized seed bed to and growth? Best tools to use? Cost? Best method of **1:** 74–76, 83–87, 96, 190 **11:** 87–114 **13:** 9–10, 15, 21–22 **24:** xix **25:** 35–42 **39:** 28–40 **276:** 155 **278:** 91–122 **279:** 390–392 **285:** 90–92, 156–158 **767:** 67–72 **770:** 5–6 **876:** 77–78, 88–89
	(2) Keep accurate record of cost or preparing ground, including portion of original plowing and harrowing.
8. Plant how?	(1) Shall you plant by hand or with a seed sower? **11:** 117 **16:** 97 **24:** xix-xx **39:** 137 **276:** 163–164
	A. How is a seed sower set for lettuce seed?
	B. How is lettuce seed planted by hand? **25:** 54–55 **39:** 135
	(2) Shall you soak your seed? **39:** 134
	(3) Shall your rows be straight? **25:** 36

[1] What do you know about the history and kinds of tillage tools? **5:** 82–94 **252:** 31–32

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Lettuce growing—Continued.

Guiding questions for planning this project.	Guiding questions for studying and understanding this project.
8. Plant how—*Continued.*	(4) Plant how deep, and how far apart between rows and between plants? To what extent should size of seed, time of year, weather, and soil conditions control depth and distances? **1:** 190 **11:** 117–118 **13:** 47 **25:** 53–54, 327, 331 **31:** 113 **39:** 133–134, 357 **285:** 81 **747:** 254 **753:** 159 **874:** 89–93
	(5) Keep itemized record of cost of planting.
9. Cultivate how?	(1) Shall you cultivate your lettuce with both horse and hand tools? **11:** 95–96, 101–107 **16:** 96–103 **25:** 35–37 **27:** 18, 52–56, 157–159 **39:** 358 **276:** 360 **853:** 112–113 **876:** 76–81
	(2) Keep items of cost of cultivation.
10. Shall you water?[1]	(1) What is "free" water? How far from the surface is the "free-water" level in your lettuce ground? **285:** 48–49 **289:** 45–46 **683:** 29
	(2) What is "capillary" water? Perform at least one experiment for observing the movement of "capillary water." **25:** 55–56 **285:** 44, Fig. 24; 48, Fig. 26, Fig. 27; 49–50, Fig. 28 **289:** 41 **681:** 40 **747:** 14 **762:** 80–85
	(3) What is "film" water. How much film surface should a cubic foot of clay loam particles have? **5:** 80 **285:** 50–52 **289:** 22–24 **581:** 4–5 **683:** 30 **747:** 10–12 **762:** 75–80
	(4) Where does all water come from? **5:** 61
	(5) What use does a plant make of water, and how does it take it from the soil? Perform an experiment for observing the process of "osmosis."[2] **5:** 64–67, 73 **285:** 39 **289:** 42–43 **298:** 64 **752:** 17–21 **768:** 16–19, 24 **772:** 201–204
	(6) What is the comparative water-absorbing power of different soils, including a good quality of garden soil? **285:** 45, Fig. 25
	(7) What quantities of water do different plants require for maturing their crops? **5:** 62–63, 67 **285:** 40
	(8) Does lettuce require much or little water for the quickest and best growth? **34:** 83 **39:** 358
	(9) What is meant by "watering with the hoe"? **5:** 85–86 **25:** 55–56 **876:** 102–103
	(10) Under what conditions, if at all, is it advisable to water after sowing lettuce seed? **25:** 56

[1] What part has water played in soil formation? **289:** 7–15 **681:** 10–14 **683:** 3, 11, 15 **685:** 74–108.

[2] What are "plasmolysis" and "wilting" of lettuce? **278:** 69, 80, 81.

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Lettuce growing—Continued.

Guiding questions for planning this project.	Guiding questions for studying and understanding this
10. Shall you water—*Con.*	(11) Why "never sprinkle"? When, how, and in what quantity be applied? **1:** 190–191 **11:** 100 **13:** 22–23 **25:** 41, 104–107 **31:** 114 **876:** 104 (12) Keep account of cost in time and equipment for watering
11. Protect from what plant enemies, and how?	(1) What enemies attack the lettuce plant? A. Indoors or under glass? B. In the open? **24:** 123 **25:** 71–72, 149 **26:** 226 **39:** 356, 358 **274:** 273, 322 **276:** 361 **292:** 179–180 **768:** 102 **876:** 119 (2) Which need you fear? (3) What protection against flea-beetle? **25:** 71–72 (4) Mice? **39:** 356 (5) Cut-worms? **25:** 73, 76 **276:** 38 **558:** 47 (6) Keep account of expense for protection in time and materi
12. How harvest, dispose of product, and balance the lettuce account?[1]	(1) For family use? Credit received at market price? **11:** 483 **13:** 35 **24:** 153 **26:** 224– **39:** 357 (2) For sale? Blanched? **11:** 484 **39:** 352, 358 (3) What principles of salesmanship and accounting shall you tice? **5:** 380–383 **39:** 162, 163 **276:** 214–224 **465:** 109–138, 139, 144, 145–197 **492:** 1–21, 22–41, 82–100, 143–152 **753:** 327–328 **761:** 154–160 **782:** 157, 15 **850:** 33, 35, 41, 42, 69, 72, 74, 77, 79, 87, 88, 92 (4) Shall you keep a separate lettuce account, or include out in the account of the kitchen-gardening project as a w

[1] How serve lettuce? Its place in an attractive and wholesome diet? **25:** 147–149, 119–120.

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Chapter IV.

AGRICULTURAL PROJECT STUDY BIBLIOGRAPHY.[1]

ROVED FOR MASSACHUSETTS VOCATIONAL AGRICULTURAL SCHOOLS AND DEPARTMENTS.

he Massachusetts plan of vocational agricultural education of ondary grade depends for its best success upon the constant use, ler the guidance of the instructors, of current agricultural papers periodicals. It depends, also, upon the constant use of selected t, exercise, and reference books, bulletins, circulars, and reports.
n selecting the titles which appear in this chapter the advice of ctical farmers and of experienced agricultural instructors has n sought and has been very generously given. Final responsibil- however, for the titles included rests with the writer. Text and rence materials have been carefully examined. Not a little erial has been rejected as unsuitable for the purpose in hand. lists are intended to be illustrative, not all-inclusive.

1. AGRICULTURAL PAPERS AND PERIODICALS.

ach Massachusetts vocational agricultural library should regularly ive the current agricultural literature. The pupils should, more- r, be encouraged to subscribe for those publications which promise e most useful in their individual home work. Club rates may erally be secured where several persons subscribe together.
n order to place their literature regularly before the entire school lepartment, the publishers may be willing to send the literature is to the school or department libraries. This privilege should nediately be requested.
library copies can not be secured gratis, they should be had subscriptions paid annually from the maintenance funds of the ol or department.

2. FREE BULLETINS, CIRCULARS, AND REPORTS.

) **The United States Bureau of Education** is closely following development of vocational agricultural education of secondary le. It has published much useful material, including Bulletin 481, a "Bibliography of Education in Agriculture and Home nomics." The agricultural instructors should apply on behalf heir school or department libraries for such of the free publica-

[1] s chapter reproduces with some additions materials first published as Bulletin, No. 6, 1912, by the chusetts Board of Education.

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tions of the bureau as bear upon vocational agricultural t
secondary schools.

Applications should be addressed to the United Sta
missioner of Education, Washington, D. C.

(2) **The United States Department of Agriculture** issu
agricultural bulletins, circulars, and reports. Certain of th
directly to do with Massachusetts farming problems. Ot
with problems in other States, where the agricultural c
closely approximate those in this State.

Access to this literature nearly up to date may be had
ing to the Division of Publications of the United States
ment of Agriculture, Washington, D. C., for Circular 19
"Publications of the Department of Agriculture classifie
Use of Teachers." This was issued under date of January
Access to later literature may be had by requesting that the
List of Publications" be sent the library of the school or de
Each agricultural instructor should apply for, and use, both
19 and the regular issues of the "Monthly List."

Literature mentioned by Circular 19 and the "Month
may usually be had free by applying for it to the Secretary
culture, or to the Senator or Representative of the district
the applicant works or resides.

(3) **The Agricultural Experiment Stations** also issue lite
value to progressive farmers, and therefore of value in th
method of training. In Connecticut and in New York th
two such stations; in every State there is at least one.

All of the New England and New York stations have ki
sented to put our vocational agricultural school and de
libraries on their mailing lists. The literature they sen
be carefully filed. Occasionally literature from the stations
States may directly bear upon the productive projects un
by our boys. A sharp lookout should be kept for such lite

Such a lookout may be kept by means of the "Card
Experiment Station Literature," which is published by th
States Department of Agriculture. More than 30,000 ca
already been printed.[2] Each agricultural school and de

[1] Each State should, of course, develop lists of reference materials specially suited to its o
available sources of information.

[2] In order to show the exact nature of the clews to station literature, pertinent in one resp
to Massachusetts farming projects, which this card index affords, the subject matter on fou
printed.

Index Card 31806.

"Poultry appliances, labor-saving."—J. E. Rice and C. A. Rogers.

"New York Cornell Bul. No. 284, Nov., 1910, pp. 51 .....

"Directions are given for the construction of inexpensive, unpatented labor-saving devic
try raising. They include feeding and watering devices, pedigree and egg-collecting
catching and carrying devices, shipping packages, coops for sitting hens, fattening coops
sprouted oats, a burglar-alarm system, and an improved killing and picking box."

[Footnote continued on next page.]

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ary should endeavor to secure a partial set of these index cards. e many of the bulletins referred to on the earlier cards are now out rint, it probably will be best to start the subscription at card 00. The number of the sets at present is limited, but now and a former subscriber relinquishes his rights, and a subscription be allowed a school or department.

ubscriptions for divisions of this index, such as all cards dealing "Poultry," "Fruit," and the like, cost $3 per thousand cards; $1.25 additional, at the outset, for colored division cards to be in arranging and readily consulting the index. Divisions may ubscribed for until full sets become available. The Office of eriment Stations of the United States Department of Agriculture receive the subscriptions for both sets and divisions.

key to the index, containing the system of classification, is sent pplication.

Make payments in advance by United States postal order in favor . Zappone, disbursing officer, and forward in envelopes addressed he Director of the Office of Experiment Stations, Washington, .

Footnote—Continued.

Card 31810.

lk pails, covered, tests."—H. A. Harding, J. K. Wilson, and G. A. Smith.

w York State Bul. No. 326, Dec., 1910, pp. 249–281, pls. 4.....

A report of experiments to determine the effect on the germ content of using improved milk pails. e than one-half the infection that milk receives during the milking process can be prevented by use covered pail. Such a pail, less than 12 inches high and provided with an elliptical opening 7 by 5 es, is practically as convenient for milk as the open pail. Such a cover can be placed on an open by any tinsmith at very little expense. This pail is inexpensive, durable, easily cleaned, and one e most efficient in keeping bacteria out of milk."

Card 31831.

getable garden."—W. H. Wicks.

ho Bul. No. 69, Aug., 1910, pp. 49, figs. 10, dgms. 2.....

The record for two years is given of a one-half acre vegetable garden established in the spring of on the horticultural grounds of the Idaho station. The value of the products in 1908 was $82.19, net profits of $57.41; in 1909, $98.38, with net profits of $79.22. The conclusion is reached that ndicious arrangement of the gardens continuous supply of vegetables may be secured through- the season. A plan is given of a farmer's vegetable garden, together with cultural suggestions on garden crops and recommended varieties."

Card 31943.

eding experiments with pigs."—A. L. Stabler.

ryland Bul. No. 150, Jan., 1911, pp. 93–120, fig. 1.....

Pigs fed silage made faster gains than those fed ground fodder mixed with their feed. Young pigs e faster gains on corn meal and skim milk than on shelled corn and skim milk. Pigs fed mixed soaked 24 hours made faster and more economical gains than those fed the same mixture dry sh soaked. Chopped alfalfa failed to take the place of a part of the middlings in a ration consist- of shelled corn, wheat middlings, and skim milk. Soft coal in unlimited quantities seemed un- ful for pigs in pens. The use of a tonic mixture, wood charcoal and soft coal, as correctives eased gains. Other feeding tests are reported."

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(4) **Massachusetts Agricultural Experiment Station** lit
course, is covered by the card index above described. In
there may be no delay, however, in securing such of its p
as may be needed at once, the following list of those no
is given:

Bulletins and their numbers—
33. Glossary of fodder terms.
76. The imported elm-leaf beetle.
115. Cranberry insects.
123. Fungicides, insecticides, and spraying directions.
125. Shade trees.
133. Green crops for summer soiling.
134. The hay crop.
137. The rational use of lime. Also, the Distribution, composition and
138. Tomato diseases.
139. Inspection of commercial feedstuffs (October, 1911).
140. Inspection of commercial fertilizers (December, 1911).

Technical bulletins—
2. The graft union.
3. The blossom end rot of tomatoes.

Circulars—
20. The use of lime in Massachusetts agriculture.
22. Poultry manures, their treatment and use.
26. Fertilizers for potatoes.
27. Seeding mowings.
29. Chemical analysis of soils.

Applications for these and future publications of like
should be addressed to the Director of the Massachuset
tural Experiment Station, Amherst, Mass.

(5) **"Facts for farmers,"** issued monthly by the Extensi
of Massachusetts Agricultural College, is a live leaflet
topics which bear directly upon Massachusetts farming fr
to season. A full file of these leaflets should be preserved fo
in each agricultural school and department library. Mem
agricultural classes, or their fathers, may receive copies
individual files by asking that their names be put on the
Service mailing list.

Applications should be addressed to W. D. Hurd, Direc
Extension Service, Amherst, Mass.

(6) **The Massachusetts Board of Agriculture** publishe
tural bulletins and reports, a complete file of which, begi
January, 1910, should be at hand for reference. In addit
annual volumes, the board of agriculture has printed su
bulletins as the following: 1. Poultry Culture. 2. Orcha
Grasses and Forage Crops. 4. Small Fruits and Berries.
table Growing.

Applications for its publications should be addressed to
Board of Agriculture, State House, Boston, Mass. Copi

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not only by the libraries, but also by individual agricultural
lents.

7) **The State forester's** work closely concerns all farmers who are
fronting the problems of protection against brown-tail and gypsy
h depredations, of protection against forest fires, and of economi-
y cropping their wood or timber lots, and of disposing of lumber to
r best advantage. Each agricultural school and department
uld keep a complete file of the State forester's publications. Most
hese publications are fully illustrated and may be had by both the
aries and the individual agricultural students.

ollowing are some of the publications now available:

Forest trees of Massachusetts: How you may know them. A pocket manual.
Massachusetts wood-using industries.
The evergreens. Methods of study in public schools.
Reforestation in Massachusetts.
How and when to collect white pine seed.
Forest mensuration of the white pine. How to estimate standing timber.
How to make improvement thinnings.
Forest fire-fighting equipment in our towns.
Gypsy and brown-tail moths.
Colored plates of the gypsy and brown-tail moths and calosoma beetle.
The chestnut bark disease.

pplications for these and future publications should be addressed
he State Forester, 6 Beacon Street, Boston, Mass.

EXT, EXERCISE, AND REFERENCE BOOKS, BULLETINS, CIRCULARS, AND REPORTS.

opies of the books, bulletins, circulars, and reports hereafter listed
on file in the agricultural library of the Massachusetts Board of
ication, where they may be examined by school officers. Where
ational agricultural school and department work is started certain
es should be provided at the outset. These are necessary parts
n approved equipment for the present year. Others may be
ed in succeeding years, until an adequate working library has been
blished.[1]

) **Instructor's aid necessary.**—It is, of course, understood that
following lists are for the convenience of the several instructors,
for use by classes, with the help, step by step, of these instructors.
erence materials, therefore, suited to minds of different grades of
urity have been included. Some have been successfuly used in
ientary schools; others, by secondary schools, and even by college
ses. The instructor's intimate knowledge of the needs and mental
abilities of his individual boys will determine his assignment of
n laboratory exercises and reading matter.

[1] Prof. G. F. Warren, "Elements of Agriculture," pp. 402, 403 (see below, No. 5), lists a foundation set of secondary school agricultural reference books purchasable for about $50.

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(2) **Lists subject to revision.**—It is to be expected that fr to time additions to these lists will need to be made. Sugge to usable additions are earnestly solicited. The instructors cially requested to report which of the entries here includ best suited to their different classes. The most competent of these lists will thus be assured.

(3) **Prices and estimates.**—Postage or express charges added where prices are marked "net." For example, "The C life Movement," by Prof. L. H. Bailey, is listed as follows net; by mail, $1.34." Discounts from prices not marke may usually be expected.

(4) **Student purchases.**—Prof. L. H. Bailey, in addressin short-course students at the Cornell Agricultural College, is to have said that he hoped, if they took nothing else ho would take home with them ten or twelve dollars' worth books dealing with the branches of practical agricultural pr which they expected to follow. A similar hope might we pressed on behalf of the boys who seek vocational agricultur training such as that described in this bulletin.

Fortunately a few most excellent books for home gui profitable farm work are now to be had at moderate co agricultural instructors may properly enough seek to stimu boys in their classes to purchase one or more such books ev Wise guidance may be given by observing which books prove to be most useful to the individual boys in carrying particular home farm projects.

Publishers will undoubtedly be very willing to allow their most favorable school discounts, especially if orders warded through the school purchasing agent.

(5) **Reference numbers.**—The Arabic numbers at the le entries are for convenience in referring to materials found bibliography.[1]

A. Library arrangement.—If these numbers are put on t of the books, on the fronts of the pamphlet cases in which are filed and on the shelves where sets of reports are kep not be necessary to consult these printed lists in using the agr library. The student or instructor may go directly to the themselves, on the library shelves. In cases where schools have libraries and systems of numbering, these special numb be added.

B. Project outlines.—In the outlines for project instructi in Chapter III the following entries are referred to by nun

[1] A similar use of numbers for ready reference has been made in "Laboratory Exercises in agement," by Warren and Livermore.

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tle.[1] The instructors in their future outline making may also t most convenient to use these numbers. This will save both and space.

Library card indexes.—At the pleasure of the school officers, indexes by authors and by titles may be made. The author may then be arranged alphabetically by names; and the title may be alphabetically arranged by subjects, such as "Dairy- "Vegetable Growing," and "Fruit Growing." In such a case, ooks, bulletins, and reports themselves would remain in the rical order here adopted, and each card would bear the number ed the particular title in these lists. Any book, for example, thus be found instantly; and, after use, could be returned to its r place by simply looking at its number.

Future entries.—Gaps in the numbering have been left for ossible addition of future entries. Missing numbers, however, ccasion no confusion. The simple numerical order may deter- the arrangement, even though now and then a gap may appear en entries. After the vacant numbers have all been assigned, urther additions may be made at will by aid of points. Next numbers may then be written, for exampie, as follows: 4.1, 4.2, or 9.1, 9.2, etc., or 49.1, 49.2, 49.3, etc.

Reference letters.—The letters following the titles refer to rresponding letters at the left of the names of the publishers of espective entries. Needless repetition of the full names and sses of publishers is thus avoided. A complete list of the pub- s and their addresses immediately follows the reference lists. pp. 93–94.)

State help and approval.—The agent of the board of education ricultural education will from year to year advise Massachusetts ctors who need his help in making approved selections from lists, and in the numbering, indexing, and arrangement of ltural library materials.

RICULTURAL PROJECT STUDY BIBLIOGRAPHY, ARRANGED FOR READY REFERENCE.[2]

I. *Text-books approved for first and second year agricultural survey.*[3]

n, A. R. Beginnings in agriculture. (N[4]) 60 cents net.

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ne and Hatch. High-school agriculture. (BBB)

Bulletins of the Board of Education, No. 5, 1912, and No. 9, 1913.

re more than one entry appears under the headings marked by Romal numerals, the entries above ed lines are arranged alphabetically by authors, by States, or by governments, divisions, bureaus, . Space below the dotted lines is reserved for additions to the original entries which have been, be made from time to time.

textbooks named were chosen for Massachusetts schools. They are not necessarily the best for States.

letters in parentheses are those assigned the various publishers. For the list of publishers and their es to which these letters refer, see pp. 93–94.

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II. *Text-books approved for third and fourth year agricultural surve*

5. Warren, G. F. Elements of agriculture. (N) $1.10 net.

6. Warren, G. F. Farm management. (N)
7. Harper, M. W. Animal husbandry for schools. (N)[2]

III. *For first and second year study of projects in—*

1. Vegetable growing.

10. Allen, C. L. Cabbages, cauliflower, etc. (O) 50 cents.
11. Bailey, L. H. Manual of gardening. (N) $2 net.
12. Beattie, W. R. Celery (Farmers' Bul. 282). (Bb)
13. Beattie, W. R. The home vegetable garden (Farmers' Bul. 255). (Bb)
14. Beattie, W. R. Home production of onion seed and sets (Farmers' Bul.
15. Beattie, W. R. Onion culture (Farmers' Bul. 354). (Bb)
16. Bennett, Ida D. The vegetable garden. (P) $1.50 net.
17. Corbett, L. C. Beans (Farmers' Bul. 289). (Bb)
18. Corbett, L. C. Cabbage (Farmers' Bul. 433). (Bb)
19. Corbett, L. C. Cucumbers (Farmers' Bul. 254). (Bb)
20. Corbett, L. C. Tomatoes (Farmers' Bul. 220). (Bb)
21. Duggar, B. M. The cultivation of mushrooms (Farmers' Bul. 204). (B
22. Duggar, J. F. Potato culture (Farmers' Bul. 35). (Bb)
23. Fraser, Samuel. The potato. (O) 75 cents.
24. French, Allen. How to grow vegetables. (N) $1.75 net.
25. Fullerton, E. L. How to make a vegetable garden. (P) $2 net.
26. Green, Samuel B. Vegetable gardening. (Q) $1.
27. Greiner, T. How to make the garden pay. (R) $1 net.
28. Handy, R. B. Asparagus culture (Farmers' Bul. 61). (Bb)
29. Hexamer, F. M. Asparagus. (O) 50 cents.
30. Kirkland, A. H. Usefulness of the American toad (Farmers' Bul. 196).
31. Massachusetts. Vegetable growing (Mass. State Bd. of Agr. Bul. 5). (
32. Morse, J. E. The new rhubarb culture. (O) 50 cents.
33. Rexford, E. E. The home garden. (S) $1.25 net.
34. Roberts, Harry. The beginner's book of gardening. (T) $1 net.
35. Schoene, W. J. Cabbage seed beds, protection (N. Y. State Bul. 334).
36. Sevey, G. C. Bean culture. (O) 50 cents.
37. Sevey, G. C. Peas and pea culture. (O) 50 cents net.
38. Vilmorin-Andrieux. The vegetable garden. (U) $3.75 net.
39. Watts, R. L. Vegetable gardening. (O) $1.75 net.
40. Wicks, W. H. Vegetable garden. (V)

41. Meier, W. H. D. School and home gardens. (CC)
42. Grubb & Guilford. The potato. (P)

2. Small-fruit growing.

(See also Reference No. 41.)

50. Card, Fred W. Bush fruits. (N) $1.50 net.
51. Corbett, L. C. Cranberry culture (Farmers' Bul. 176). (Bb)
52. Corbett, L. C. The home fruit garden preparation and care (Fa
154). (Bb)
53. Corbett, L. C. Pruning (Farmers' Bul. 181). (Bb)
54. Corbett, L. C. Raspberries (Farmers' Bul. 213). (Bb)

[1] The textbooks named were chosen for Massachusetts schools. They are not necessari
all other States.

[2] One of the entries added after publication of the original list. See above (5), D, also
note on p. 75.

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. Corbett, L. C. Strawberries (Farmers' Bul. 198). (Bb)
. Green, S. B. Popular fruit growing. (Q) $1.
. Husmann, G. C. Grape propagation, pruning, and training (Farmers' Bul. 471). (Bb)
. Massachusetts. Small fruits and berries (Mass. State Bd. of Agr. Bul. 4). (C)
. Maynard, S. T. Successful fruit culture. (O) $1.
. Ragan, W. H. The home vineyard, with special reference to northern conditions (Farmers' Bul. 156). (Bb)
. Ragan, W. H. Varieties of fruits recommended for planting (Farmers' Bul. 208). (Bb)
. Rhode Island. Bush fruits (R. I. Exp. Sta. Bul. 91). (M)
. Waugh, F. A. Fruit: Harvesting, storing, and marketing. (O) $1.
. White, J. J. Cranberry culture. (O) $1.

3. Beekeeping.

. Benton, Frank. Beekeeping (Farmer's Bul. 59). (Bb)
. Comstock, A. B. How to keep bees. (P) $1.
. Phillips, E. F. Bees (Farmers' Bul. 447). (Bb)
. Root, A. I. and E. R. The A B C and X Y Z of bee culture. (W) $1.50 net.

4. Poultry keeping.

American Poultry Association. The American standard of perfection. (X)
Beale, Stephen. Profitable poultry keeping. (Y) $1.
Bell, G. A. Poultry management (Farmers' Bul. 287). (Bb)
Boyer, M. K. Money in broilers and squabs. (Z) 50 cents.
Brigham, A. A. Progressive poultry culture. (AA) $1.50 net.
Brown, Edward. Poultry keeping as an industry for farmers and cottagers. (BB) 6s.
Connecticut. Water glass: A preservative for eggs (Storrs Bul. 67). (H)
Howard, G. E. Standard varieties of chickens (Farmers' Bul. 51). (Bb)
Howard, G. E. Ducks and geese: Standard varieties and management (Farmers' Bul. 64). (Bb)
Langworthy, C. F. The guinea fowl and its use as food (Farmers' Bul. 234). (Bb)
Massachusetts. Poultry culture. (C)
McGrew, T. F. Turkeys (Farmers' Bul. 200). (Bb)
Pearl, Raymond. Methods of poultry management at the Maine Agricultural Experiment Station. (Bb)
Powell, E. C. Making poultry pay. (O) $1.
Rhode Island. The rearing and management of turkeys, with special reference to the blackhead disease (R. I. Exp. Sta. Bul. 123). (M)
Rice, Wm. E. Squab raising (Farmer's Bul. 177). (Bb)
Robinson, J. H. Principles and practice of poultry culture. (CC) $2 net.
Sands, R. B. American poultry culture. (MMMM) $1.25.
Slocum, R. R. Capons and caponizing (Farmers' Bul. 452). (Bb)
Slocum, R. R. Marketing eggs through the creamery (Farmers' Bul. 445). (Bb)
. Stoddard, H. H. The new egg farm. (O) $1.
. Valentine, C. S. How to keep hens for profit. (X) $1.50 net.
. Watson, G. C. Farm poultry. (N) $1.25 net.
. Wood, R. H. Incubation and incubators (Farmers' Bul. 236). (Bb)
. Wright, Lewis. The practical poultry keeper. (DD) 87 cents.

. Howard & McGrew. Perfected poultry. (PPPP)
. Lewis, H. R. Productive poultry husbandry. (S)
. Robinson, J. H. Poultry craft. (QQQQ)
. Various authors. The poultry book. (P)

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5. Sheep and goat husbandry.

110. Craig, J. A. Sheep feeding (Farmers' Bul. 49). (Bb)
111. Curtiss, C. F. Raising sheep for mutton (Farmers' bul. 96). (Bb)
112. Thompson, G. F. The angora goat (Farmers' Bul. 137). (Bb)
113. Wing, J. E. Sheep farming in America. (EE) $1.
114. Wing, J. E., *et al.* The winter lamb. (FF)

6. Swine husbandry.

120. Coburn, F. D. Swine in America. (O) $2.50 net.
121. Craig, R. A. Diseases of swine. (O) 75 cents.
122. Dietrich, Wm. Swine. (GG) $1.50
123. Rommel, G. M. Pig management (Farmer's Bul. 205). (Bb)

7. Ornamental planting.

(See also References Nos. 34, 41.)

130. Bennett, I. D. The flower garden. (P) $1.10 net.
131. Corbett, L. C. Annual flowering plants (Farmers' Bul. 195). (Bb)
132. Corbett, L. C. Beautifying the home grounds (Farmer's Bul. 185). (Bb)
133. Corbett, L. C. The lawn (Farmers' Bul. 248). (Bb)
134. Ely, H. R. The practical flower garden. (X) $2.
135. Fernow, B. E. The care of trees in lawn, street, and park. (HH) $2.
136. Hall, Wm. L. Tree planting on rural school grounds (Farmers' Bul. 134). (Bb)
137. Howard, L. O. Three insect enemies of shade trees (Farmers' Bul. 99). (Bb)
138. Kirkgaard, John. A guide for the gardener. (II) $2.50 net.
139. Maynard, S. T. Landscape gardening as applied to home decoration. (JJ) $1.50.
140. Miller, Wilhelm. What England can teach us about gardening. (P) $4 net.
141. Pinchot, Gifford. Arbor day (U. S. Forest Service Circ. 96). (Bg)
142. Sedgwick, Mabel C. The garden month by month. (KK) $4.04 net.
143. Start, E. A., *et al.* Shade trees. (D)
144. Waugh, F. A. Landscape gardening. (O) 50 cents.

IV. *For third and fourth year study of projects in—*

1. Animal husbandry.

(See also references above, No. 70f, No. 80f, No. 110f, and No. 120f.)

150. Adams, J. W. Horseshoeing (Farmers' Bul. 179). (Bb).
151. Alvord, H. E. Breeds of dairy cattle (Farmers' Bul. 106). (Bb)
152. Alvord, H. E. The dairy herd: Its formation and management (Farmers' Bul. 55). (Bb)
153. Brooks, W. P. The hay crop (Mass. Agr. Exp. Sta. Bul. 134). (D)
154. Brooks, W. P. Seeding mowings (Mass. Agr. Exp. Sta. Circ. 27). (D)
155. Brown, Edgar. Alfalfa seed (Farmers' Bul. 194). (Bb)
156. Brown, E., *et al.* Seed of red clover and its impurities (Farmers' Bul. 260). (Bb)
157. Carrier, L. Cost of filling silos (Farmers' Bul. 292). (Bb)
158. Clinton, L. A. Corn growing in New England (Mass. State Bd. of Agr.). (C)
159. Coburn, F. D. Alfalfa. (O) 50 cents.
160. Connecticut. Quality of milk affected by common dairy practices (Storrs Bul. 42). (H)
161. Connecticut. Milking machines (Storrs Bul. 47). (H)
162. Craig, J. A. Judging live stock. (LL) $1.50.
163. Derr, H. B. Barley: Growing the crop (Farmers' Bul. 443). (Bb)
164. Dondlinger, P. T. The book of wheat. (O) $2 net.
165. Duvel, J. W. T. The germination of seed corn (Farmers' Bul. 253). (Bb)

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166. Gurler, H. B. The farm dairy. (EE) $1.
167. Hartley, C. P. Corn growing (Farmers' Bul. 199). (Bb)
168. Hartley, C. P. Corn cultivation (Farmers' Bul. 414). (Bb)
169. Hartley, C. P. Harvesting and storing corn (Farmers' Bul. 313). (Bb)
170. Hartley, C. P. The production of good seed corn (Farmers' Bul. 229). (Bb)
171. Hartley, C. P. Seed corn (Farmers' Bul. 415). (Bb)
172. Hickman, R. W. The dehorning of cattle (Farmers' Bul. 350). (Bb)
173. Hillman, F. H. The adulteration of forage plant seeds (Farmers' Bul. 382). (Bb)
174. Illinois. Four systems of dairy farming and the profit on each (University of Ill. Circ. 151). (MM)
175. Johnstone, J. H. S. The horse book. (EE) $2.
176. Lane, C. B. Business of dairying. (O) $1.25 net.
177. Langworthy, C. F. Principles of horse feeding (Farmers' Bul. 170). (Bb)
178. Lindsey, J. B. Green crops for summer soiling (Mass. Agr. Exp. Sta. Bul. 133). (D)
179. Lyon and Montgomery. Examining and grading grains. (CC) 48 cents net.
180. Maine. Practical horticulture. Red clover (Maine Bul. 113). (I)
181. Massachusetts. Grasses and forage crops (Mass. St. Bd. of Agr. Bul. 3). (C)
182. Michels, John. Dairy farming. (NN) $1.
183. Moore, G. T., *et al.* Beneficial bacteria for leguminous crops (Farmers' Bul. 214). (Bb)
184. Myrick, Herbert. The book of corn. (O) $1.50.
185. Oakley, R. A. Canada bluegrass (Farmers' Bul. 402). (Bb)
186. Piper, C. V. Leguminous crops for green manuring (Farmers' Bul. 278). (Bb)
187. Plumb, C. S. Indian corn culture. (EE) $1.
188. Plumb, C. S. Silos and silage (Farmers' Bul. 32). (Bb)
189. Plumb, C. S. Types and breeds of farm animals. (CC) $1.60 net.
190. Rhode Island. Corn selection (R. I. Exp. Sta. Bul. 116). (M)
191. Roberts, I. P. The horse. (N) $1.25 net.
192. Saunders, W. D., *et al.* Dairy herd records (Virginia Bul. 190). (OO)
193. Shaw, Thos. Canadian field peas (Farmers' Bul. 224). (Bb)
194. Shaw, Thos. Rape plant, its history, culture, and uses (Farmers' Bul. 11). (Bb)
195. Shaw, Thos. Clovers. (O) $1 net.
196. Shaw, Thos. Forage crops other than grasses. (O) $1.
197. Shaw, Thos. Grasses and how to grow them. (Q) $1.50.
198. Shaw, Thos. Soiling crops and the silo. (O) $1.50.
199. Van Norman, H. E. First lessons in dairying. (O) 50 cents net.
200. Vinall, H. N. Meadow fescue (Farmers' Bul. 361). (Bb)
201. Voorhees, Ed. B. Forage crops. (N) $1.50 net.
202. Warburton, C. W. Oats: Growing the crop (Farmers' Bul. 424). (Bb)
203. Warburton, C. W. Oats—Sixty Day and Kherson (Farmers' Bul. 395). (Bb)
204. Westgate, J. M. Alfalfa (Farmers' Bul. 339). (Bb)
205. Westgate, J. M., *et al.* Red clover (Farmers' Bul. 455). (Bb)
206. Williams, T. A. Millets (Farmers' Bul. 101). (Bb)
207. Zintheo, C. J. Corn-harvesting machinery (Farmers' Bul. 303). (Bb)

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208. Harper, M. W. Training and breaking of horses. (N) $1.75.
209. Rose, Laura. Farm dairying. (MMMM) $1.25.
210. Harper, M. W. Manual of farm animals. (N)
211. Willoughby, T. F. The golden stream. (RRRR)
212. Eckles, C. H. Dairy cattle and milk production. (N)
213. Sheldon, J. P. The farm and dairy. (SSSS)
214. Montgomery, E. G. Corn crops. (N) $1.60.

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2. Fruit growing.

(See also references under III, 2.)

220. Bailey, L. H. The nursery book. (N) $1.50 net.
221. Bailey, L. H. The principles of fruit growing. (N) $1.50 net.
222. Bailey, L. H. The pruning book. (N) $1.50 net.
223. Brackett, G. B. The apple and how to grow it (Farmers' Bul. 113). (Bb)
224. Connecticut. Apple growing in New England, Parts I and II (Storrs Bul. 61). (H)
225. Connecticut. Apple growing in New England, Part III (Storrs Bul. 62). (H)
226. Connecticut. Apple growing in New England, Part IV (Storrs Bul. 66). (H)
227. Massachusetts. Orcharding (Mass. State Bd. of Agr. Bul. 2). (C)
228. Moore, J. G. Orchards, management (Wisconsin Bul. 201). (PP)
229. Nielsen, H. T. Cowpeas (Farmers' Bul. 318). (Bb)
230. Piper, C. V., *et al.* Soy beans (Farmers' Bul. 372). (Bb)
231. Rhode Island. Improving an orchard (R. I. Exp. Sta. Bul. 83). (M)
232. Thomas, J. J. The American fruit culturist. (O) $2.50 net.
233. Waugh, F. A. The American apple orchard. (O) $1 net.
234. Wolverton, L. The Canadian apple grower's guide. (QQ) $2 net

235. Waugh, F. A. Beginner's guide to fruit growing.

3. Market gardening.

(See also references under III, 1.)

250. Bailey, L. H. The forcing book. (N) $1.25 net.
251. Beattie, W. R. Celery culture. (O) 50 cents.
252. Beattie, W. R. Frames as a factor in truck growing (Farmers' Bul. 460). (Bb)
253. Corbett, L. C. The potato as a truck crop (Farmers' Bul. 407). (Bb)
254. Rawson, Herbert. Success in market gardening. (P) $1.10.
255. Rhode Island. Soil treatment in greenhouse culture (R. I. Exp. Sta. Bul 107). (M)
256. Rhode Island. A further study of soil treatment in greenhouse culture (R. I. Exp. Sta. Bul. 128). (M)
257. Taft, L. R. Greenhouse construction. (O) $1.50.
258. Taft, L. R. Greenhouse management. (O) $1.50.

V. For laboratory exercises and scientific data bearing upon the productive projects undertaken.

Intended to be supplementary to the entries above given and to be drawn upon as occasion permits or demands. Arrangement alphabetical.

1. Agriculture in general.

270. Bailey, L. H. Cyclopedia of American agriculture: Farms, Vol. I. (N) $5 net.
271. Bailey, L. H. Cyclopedia of American agriculture: Crops, Vol. II. (N) $5 net
272. Bailey, L. H. Cyclopedia of American agriculture: Animals, Vol. III. (N) $5 net.
273. Bailey, L. H. Cyclopedia of American agriculture: Farm and community, Vol. IV. (N) $5 net.
274. Bailey, L. H. Farm and garden rule book. (N) $2.
275. Bailey, L. H. Principles of agriculture. (N) $1.25 net.
276. Bailey, L. H. Principles of vegetable gardening. (N) $1.50 net.
277. Boss, Andrew. Meat on the farm (Farmers' Bul. 183). (Bb)
278. Brooks, W. P. Agriculture: Soils, Vol. I. (RR) $1.25.
279. Brooks, W. P. Agriculture: Manures, fertilizers, and farm crops, Vol. II. (RR) $1.25.
280. Brooks, W. P. Agriculture: Animal husbandry. (RR) $1.25.

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281. Davenport, E. Domesticated animals and plants. (CC) $1 net.
282. Dorset, M. Some common disinfectants (Farmers' Bul. 345). (Bb)
283. Ewell, E. E. Every farm an experiment station (U. S. Dept. of Agr. Yearbook, 1897). (B)
284. Garriot, E. B. Notes on frost (Farmers' Bul. 104). (Bb)
285. Goodrich, C. L. The first book of farming. (P) $1 net.
286. Hunt, T. F. The cereals of America. (O) $1.75.
287. Hunt, T. F. Forage and fiber crops in America. (O) $1.75.
288. Lantz, D. E. How to destroy rats (Farmers' Bul. 369). (Bb)
289. Massey, W. F. Practical farming. (MMMM) $1.50 net.
290. Voorhees, E. B. First principles of agriculture. (TT) 60 cents net.
291. Warburton, C. W. Oats: Distribution and uses (Farmers' Bul. 420). (Bb)
292. Wilcox, E. V. Farmers' cyclopedia of agriculture. (O) $3.50.
293. Williams, F., jr. Clearing new land (Farmers' Bul. 150). (Bb)

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294. Hopkins, C. G., *et al.* For better crops. (RRRR)

2. Alcohol, industrial.

300. Wente, A. O., *et al.* Potato culls as a source of industrial alcohol (Farmers' Bul. 410). (Bb)
301. Wiley, H. W. Industrial alcohol: Sources and manufacture (Farmers' Bul. 268). (Bb)
302. Wiley, H. W. Industrial alcohol: Uses and statistics (Farmers' Bul. 269). (Bb)
303. Wiley, H. W., *et al.* Industrial alcohol (Farmers' Bul. 429). (Bb)

3. Animal diseases.

310. Connecticut. Bacillary white diarrhea of young chicks, second report (Storrs Bul. 68). (H)
311. Dorset, M. Hog cholera (Farmers' Bul. 379). (Bb)
312. Maine. Poultry diseases (Maine, Bul. 398). (I)
313. Mayo, N. S. Diseases of animals. (N) $1.50 net.
314. Mayo, N. S. Diseases of pigs (Virginia Bul. 189). (OO)
315. Mohler, J. R. Milk fever: Its simple and successful treatment (Farmers' Bul. 206). (Bb)
316. Mohler, J. R. The tuberculin test of cattle for tuberculosis (Farmers' Bul. 351). (Bb)
317. Phillips, E. F. The treatment of bee diseases (Farmers' Bul. 422). (Bb)
318. Reynolds, M. H. Veterinary studies for agricultural students. (N) $1.75 net.
319. Rhode Island. A biological study of 11 pathogenic organisms from cholera-like diseases in poultry (R. I. Exp. Sta. Bul. 146). (M)
320. Rhode Island. Blackhead in turkeys: A study in avian coccidiosis (R. I. Exp. Sta. Bul. 141). (M)
321. Rhode Island. Further experiments in connection with the blackhead disease (R. I. Exp. Sta. Bul. 124). (M)
322. Rhode Island. Goose septicemia (R. I. Exp. Sta. Bul. 86). (M)
323. Salmon, D. E. Diseases of poultry. (UU) 60 cents net.
324. Salmon, D. E. Scab in sheep (Farmers' Bul. 159). (Bb)
325. United States. Tuberculosis (Farmers' Bul. 473). (Bb)

4. Animal foods and feeding.

335. Allen, E. W. The feeding of farm animals (Farmers' Bul. 22). (Bb)
336. Armsby, H. P. The computation of rations for farm animals by the use of energy value (Farmers' Bul. 346). (Bb)
337. Burns, J. C. Feeding experiments with pigs (Texas Bul. 131). (VV)

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338. Connecticut. Pig-feeding experiments (Storrs Bul. 39). (H)
339. Connecticut. The facility of digestion of foods a factor in feedin 43). (H)
340. Connecticut. The cost of feeding heifers (Storrs Bul. 63). (H)
341. Esten, W. M., *et al.* Silage fermentation (Storrs Bul. 70). (H)
342. Henry, W. A. Feeds and feeding. (WW) $2 net.
343. Holland, E. B. Glossary of fodder terms (Hatch Exp. Sta. Bul. 3
344. Jeffrey, J. S. Feeding experiments with poultry (N. C. College Bul. 211). (XX)
345. Jordan, W. H. The feeding of animals. (N) $1.50 net.
346. Rhode Island. Feeding experiments with chickens, cockerels (Agr. Exp. Sta. Bul. 126). (M)
347. Rice, J. E., *et al.* Feeding experiments with young chickens 282). (K)
348. Shaw, Thos. Feeding farm animals. (O) $2.
349. Smith, P. H., *et al.* Inspection of commercial feedstuffs (Mass. Bul. 139). (D)

5. Animal life, propagation and tests.

360. Kellogg, V. L. Animals. (YY) $1.80 net.
361. Jordan, D. S., *et al.* Animal studies. (YY) $1.25 net.
362. Oldys, H. Pheasant raising in the United States (Farmers' Bu
363. Punnett, R. C. Mendelism. (N) $1.25.
364. Shaw, Thos. Animal breeding. (O) $1.50.
365. Stabler, A. L. Feeding experiments with pigs (Md. College Pa Sta. Bul. 150). (ZZ)

366. Peabody and Hunt. Elementary biology: Animal and human. (

6. Bacteriology, agricultural.

370. Conn, H. W. Agricultural bacteriology. (AAA) $2 net.
371. Conn, H. W. Bacteria in milk and its products. (AAA) $1.50
372. Conn, H. W. Practical dairy bacteriology. (O) $1.25.
373. Connecticut. Bacterium lactis acidi and its sources (Storrs Bul.
374. Connecticut. Comparative studies with covered milk pails (S (H)
375. Harding, H. A., *et al.* Milk pails, covered, tests (N. Y. State Bul
376. Lipman, J. G. Bacteria in relation to country life. (N) $1.50
377. Rogers, L. A. Bacteria in milk (Farmers' Bul. 348). (Bb)

7. Birds and agriculture.

385. Beal, F. E. L. Some common birds in their relation to agricult Bul. 54). (Bb)
386. Dearborn, Ned. How to destroy English sparrows (Farmers' Bu
387. Forbush, E. H. Useful birds and their protection (Mass. Bd. of A
388. McAtee, W. L. Our grosbeaks and their value to agriculture (456). (Bb)

8. Botany and plant physiology.

395. Andrews, E. F. Practical course in botany. (BBB) $1 net.
396. Bergen, J. Y., *et al.* Practical botany. (CC) $1.04 net.
397. Coulter, J. M. Plant structures. (YY) $1.20 net.
398. Duggar, B. M. Plant physiology. (N) $1.60 net.
399. Percival, J. Agricultural botany. (HH) $2.50 net.
400. Stevens, W. C. Introduction to botany. (CCC) $1.50 net.

401. Atkinson, F. A. Botany. (HH)

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9. Chemistry and agriculture.

rt, E. B., *et al.* General agricultural chemistry. (DDD) $1.50.
rer, F. H. Agriculture in some of its relations with chemistry, Vol. I. (EEE) $5 for set of three volumes.
rer, F. H. Agriculture in some of its relations with chemistry, Vol. II. (EEE) $5 for set of three volumes.
rer, F. H. Agriculture in some of its relations with chemistry, Vol. III. (EEE) $5 for set of three volumes.
rington, R. The chemistry of the farm. (FFF) $1.13.
lliams, R. P. Elements of chemistry. (CC) 88 cents net.

10. Construction and repairs: Plans, materials, tests, etc.

leman, G. Quantity and character of creosote in well-preserved timbers (Forest Service Circ. 98). (Bg)
wood, H. Poultry houses, construction (W. Va. Bul. 130). (GGG)
attie, W. R. The repair of farm equipment (Farmers' Bul. 347). (Bb)
bleigh, R. Handy farm devices. (O) $1.50 net.
eeders' Gazette. Farm buildings. (GG) $2.
rbett, L. C. Ice houses (Farmers' Bul. 475). (Bb)
shman, A. S. The corrosion of fence wire (Farmers' Bul. 239). (Bb)
vidson and Chase. Farm buildings. (NNNN) $2.
ke, G. B. Poultry appliances and handicrafts. (NNNN) 50 cents.
ke, G. B. Poultry architecture. (NNNN) 50 cents.
sluck, P. N. Harness making. (NNNN)
sluck, P. N. Knotting and splicing. (NNNN)
sluck, P. N. Saddlery. (NNNN)
ll, G. G. Farm buildings, practical suggestions for (Farmers' Bul. 126). (Bb)
lmstrom, J. G. Standard blacksmithing, horseshoeing, and wagon making. (Q) 50 cents.
ange Judd Co. Barn plans and outbuildings. (O) $1.
ce, J. E., *et al.* Poultry appliances, labor-saving (Cornell Bul. 284). (K)
ibler, A. L. Hog houses, description. (ZZ)
ited States. The construction of concrete fence posts (Farmers' Bul. 403). (Bb)
ited States. The use of concrete on the farm (Farmers' Bul. 461). (Bb)
alker, P. H. The use of paint on the farm (Farmers' Bul. 474). (Bb)
arren, J. A. Hog houses (Farmers' Bul. 438). (Bb)
illis, C. P. The preservative treatment of farm timbers (Farmers' Bul. 387). (Bb)
ormeley, P. L. Cement mortar and concrete: Preparation and use for farm purposes (Farmers' Bul. 235). (Bb)

11. Dairy products and manufactures.

vord, H. E. Cheese making on the farm (Farmers' Bul. 166). (Bb)
nnecticut. The camembert type of soft cheese in the United States (Storrs Bul. 35). (H)
nnecticut. Directions for making the camembert type of cheese (Storrs Bul. 46). (H)
rrington and Woll. Testing milk and its products. (HHH) $1.25.
ortensen, M. Creamery bookkeeping (Iowa Bul. 121). (III)
ueman, J. M. Butter making on the farm (Storrs Bul. 65). (H)
an Slyke, L. L. Modern methods of testing milk and milk products. (O) 75 cents.

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452. Washburn, R. M. Ice-cream making, principles and practice (Ve
155). (JJJ)
453. Webster, E. H. Butter making on the farm (Farmers' Bul. 241). (E
454. Wing, H. H. Milk and its products. (N) $1.50 net.

455. Snyder, H. Dairy chemistry. (N)
456. Barthel, Chr. Milk and dairy products. (N) $2.25.
457. McKay and Larson. Principles and practice of butter making.

12. Farm management and rural economics.

Accounts, statistics, etc.

460. Andrews, F. Costs of hauling crops from farms to shipping points
Stat. Bul. 49). (Bc)
461. Arnold, J. H. How a city family managed a farm (Farmers' Bul. 43
462. Blodgett, J. H. Relations of population and food products in the Un
etc. (Div. of Stat. Bul. 24). (Bd)
463. Blodgett, J. H. Wages of farm labor in the United States (Bureau o
26). (Bc)
464. Burritt, M. C. A successful New York farm (Farmers' Bul. 454). (E
465. Card, F. W. Farm management. (P) $2 net.
466. Carrier, L. A profitable tenant dairy farm (Farmers' Bul. 280). (B
467. Carver, T. N. Principles of rural economics. (CC) $1.04 net.
468. Clark, C. C. Wheat crops of the United States, 1866–1906 (Bureau o
57). (Bc)
469. Clark, C. C. Oat crops of the United States, 1866–1906 (Bureau of
58). (Bc)
470. Clark, C. C. Rye crops of the United States, 1866–1906 (Bureau of
60). (Bc)
471. Clark, C. C. Buckwheat crops of the United States, 1866–1906 (Bur
Bul. 61). (Bc)
472. Clark, C. C. Potato crops of the United States, 1866–1906 (Bureau o
62). (Bc)
473. Clark, C. C. Hay crops of the United States, 1866–1906 (Bureau of
63). (Bc)
474. Clothier, G. L. Forest planting and farm management (Farmers'
(Bb)
475. Covert, J. R. Dates of sowing and harvesting (Bureau of Stat. Ci
(Bc)
476. Dodge, L. G. Cropping systems for New England dairy farms (Fa
337). (Bb)
477. Dodge, L. G. Farm management in northern potato-growing section
Bul. 365). (Bb)
478. Hill, G. G. Marketing farm produce (Farmers' Bul. 62). (Bb)
479. Hitchcock, F. H. Trade of Denmark (Sec. of For. Mkts. Bul. 9). (
480. Hitchcock, F. H. Our trade with Spain, 1888–1897 (Sec. of For.
12). (Be)
481. Hitchcock, F. H. Our trade with Japan, China, and Hongkong, 1889
of For. Mkts. Bul. 18). (Be)
482. Hitchcock, F. H. Our trade with Scandinavia, 1890–1900 (Sec. of
Bul. 22). (Be)
483. Hitchcock, F. H. Sources of agricultural imports of the United Sta
For. Mkts. Bul. 24). (Be)
484. Hitchcock, F. H. Agricultural exports of the United States, 1896–1
For. Mkts. Bul. 25). (Be)

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485. Hitchcock, F. H. Agricultural imports of the United Kingdom, 1896–1900 (Sec. of For. Mkts. Bul. 26). (Be)
486. Hitchcock, F. H. Sources of the agricultural imports of the United States, 1897–1901 (Sec. of For. Mkts. Bul. 28). (Be)
487. Hitchcock, F. H. Agricultural exports of the United States, 1851–1902 (Div. of For. Mkts. Bul. 34). (Bd)
488. Holmes, G. K. Local conditions as affecting farm values, 1900–1905 (Bur. of Stat. Bul. 44). (Bc)
489. Hunt, T. F. How to choose a farm. (N) $1.58.
490. McClure, H. B. Conditions affecting the value of market hay (Farmers' Bul. 362). (Bb)
491. Peters, E. T. Cooperative credit associations in certain European countries (Div. of Stat. Report 3). (Bd)
492. Roberts, I. P. The farmer's business handbook. (N) $1.25.
493. Roberts, I. P. The farmstead. (N) $1.50.
494. Smith, C. B. Clover farming on the sandy jack-pine lands of the North (Farmers' Bul. 323). (Bb)
495. Smith, C. B., *et al.* Replanning a farm for profit (Farmers' Bul. 370). (Bb)
496. Spillman, W. J. An example of modern farming (Farmers' Bul. 242). (Bb)
497. Spillman, W. J. A successful hog and seed-corn farm (Farmers' Bul. 272). (Bb)
498. Spillman, W. J. A successful poultry and dairy farm (Farmers' Bul. 355). (Bb)
499. Taylor, H. C. Agricultural economics. (N) $1.25.
500. Terry, T. B. Our farming, or, How we have made a run-down farm bring both profit and pleasure. (KKK) 75 cents.
501. United States. The world's markets for American products, Great Britain and Ireland (Sec. For. Mkts. Bul. 1). (Be)
502. United States. The world's markets for American products, Great Britain and Ireland (Sec. For. Mkts. Bul. 1, Supp.). (Be)
503. United States. The world's markets for American products, German Empire (Sec. For. Mkts. Bul. 2). (Be)
504. United States. The world's markets for American products, France (Sec. For. Mkts. Bul. 3). (Be)
505. United States. The world's markets for American products, Netherlands (Sec. of For. Mkts. Bul. 5). (Be)
506. United States. The world's markets for American products, Belgium (Sec. For. Mkts. Bul. 6). (Be)
507. United States. The world's markets for American products, Norway (Sec. of For. Mkts. Bul. 7). (Be)
508. United States. The world's markets for American products, Sweden (Sec. For. Mkts. Bul. 8). (Be)
509. United States. The Manchester district of England as a market for American products (Sec. For. Mkts. Circ. 8). (Be)
510. United States. Hamburg as a market for American products (Sec. For. Mkts. Circ. 14). (Be)
511. United States. Our trade with Cuba from 1887–1897 (Sec. For. Mkts. Circ. 16). (Be)
512. United States. Production and distribution of the principal agricultural products of the world (Div. of Stat. Rep. 5). (Bd)
513. United States. Meat animals and packing-house products imported into 11 principal countries, 1895–1904 (Bur. of Stat. Bul. 40). (Bc)
514. United States. Norway, Sweden, and Russia as markets for packing-house products (Bur. of Stat. Bul. 41). (Bc)
515. United States. Imports of farm and forest products, 1905–1907, by countries from which consigned (Bur. of Stat. Bul. 70). (Bc)

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516. United States. Exports of farm and forest products, 1905–1907, by which consigned (Bur. of Stat. Bul. 71). (Bc)
517. United States. Imports of farm products into the United States, 185 of Stat. Bull. 74). (Bc)
518. United States. Exports of farm products from the United State (Bur. of Stat. Bul. 75). (Bc)
519. United States. Imports of farm and forest products, 1907–1909, from which consigned (Bur. of Stat. Bul. 82). (Bc)
520. United States. Imports of farm and forest products, 1908–1910, from which consigned (Bur. of Stat. Bul. 90). (Bc)
521. United States. Exports of farm and forest products, 1908–1910, to which consigned (Bur. of Stat. Bul. 91). (Bc)
522. Ward, E. G., jr. Milk transportation: Freight rates to largest 15 citi States (Div. of Stat. Bul. 25). (Bd)
523. Ward, E. G., jr. Methods and routes for exporting farm products (Bul. 29). (Bc)
524. Warren, G. F. Laboratory exercises in farm management. (N) 8
525. Warren, J. A. Small farms in the corn belt (Farmers' Bul. 325). (
526. Wing, J. E. Alfalfa farming in America. (GG) $2.
527. Woll, F. W. Handbook for farmers and dairymen. (JJ) $1.50.

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528. Green, J. B. Law for the American farmer. (N) $1.50.

13. Fruits.

540. Bailey, L. H. The evolution of our native fruits. (N) $2.
541. Kennedy, P. B. Apples, culture in Nevada (Nevada Bul. 72). (L
542. Waugh, F. A. Systematic pomology. (O) $1.

14. Insects.

550. Chittenden, F. H. Insects injurious to vegetables. (O) $1.50.
551. Comstock, J. H., *et al.* Manual for the study of insects. (MMM)
552. Connecticut. The apple-leaf miner (Storrs Bul. 45). (H)
553. Fernald, H. T. The imported elm-leaf beetle (Hatch Bul. 76). (D
554. Franklin, H. J. Cranberry insects (Mass. Agr. Exp. Sta. Bul. 115).
555. Mass. State Forester. Colored plates of the gypsy and brown-tail Calosoma beetle (Mass. State Forester Bul. 14). (F)
556. Mass. State Forester. The gypsy and brown-tail moths (Mass. St Bul. 11). (F)
557. Quaintance, A. L., *et al.* Insect and fungous enemies of the grape Rocky Mountains (Farmers' Bul. 284). (Bb)
558. Sanderson, E. D. Insect pests of farm, garden, and orchard. (JJ)
559. Saunders, Wm. Insects injurious to fruits. (S) $2 net.
560. Smith, John. Our insect friends and enemies. (S) $1.50 net.
561. Smith, J. B. Insects injurious in cranberry culture (Farmers' Bul.
562. Weed, C. M. Life histories of American insects. (N) $1.50.

15. Lime and liming.

570. Brooks, W. P. Lime, use of, in Massachusetts agriculture (Mass. Ag Circ. 20). (D)
571. Brooks, W. P. Lime, the rational use of (Mass. Agr. Exp. Sta. Bul.
572. Haskins, H. D., *et al.* Lime, the distribution, composition, and co Agr. Exp. Sta. Bul. 137). (D)
573. Rhode Island. Influence of lime upon plant growth (R. I. Exp. St (M)
574. Wheeler, H. J. The liming of soils (Farmers' Bul. 77). (Bb)

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16. Physics of agriculture.

Drainage, irrigation, machines, motors, etc.

580. Davidson, J. B., *et al.* Farm machinery and farm motors. (O) $2 net.
581. Elliott, C. G. Practical farm drainage. (JJ) $1.50.
582. Elliott, C. G. Drainage of farm lands (Farmers' Bul. 187). (Bb)
583. Johnston, C. T., *et al.* How to build small irrigation ditches (Farmers' Bul. 158). (Bb)
584. King, D. Ward. The use of the slit-log drag on earth roads (Farmers' Bul. 321). (Bb)
585. King, F. H. Irrigation and drainage. (N) $1.50.
586. King, F. H. Physics of agriculture. (NNN) $1.75.
587. Lucke, C. E., *et al.* The use of alcohol and gasoline in farm engines (Farmers' Bul. 277). (Bb)
588. Powell, F. E. Wind-mills and wind motors. (NNNN) 50 cents.
589. Wickson, E. J. Irrigation in field and garden (Farmers' Bul. 138). (Bb).

17. Plant diseases.

(See also Spraying.)

600. Galloway, B. T. Some destructive potato diseases (Farmers' Bul. 15). (Bb)
601. Mass. State Forester. The chestnut bark disease. (F)
602. Massee, Geo. A textbook of fungi. (N) $2.
603. Shear, C. L. Fungous diseases of the cranberry (Farmers' Bul. 221). (Bb)
604. Smith, Eliza H. Blossom end rot of tomatoes (Mass. Agr. Exp. Sta. Tech. Bul. 3). (D)
605. Stevens, F. L., *et al.* Diseases of economic plants. (N)
606. Stone, G. E. Tomato diseases (Mass. Agr. Exp. Sta. Bul. 138). (D)

18. Plant foods and feeding.

(See also Soils, etc.)

615. Aikman, C. M. Manures and manuring. (OOO) $2.50.
616. Beal, W. H. Barnyard manure (Farmers' Bul. 192). (Bb)
617. Brooks, W. P. Fertilizers for potatoes (Mass. Agr. Exp. Sta. Circ. 26). (D)
618. Brooks, W. P. Poultry manures, their treatment and use (Mass. Agr. Exp. Sta. Circ. 22). (D)
619. Cameron, F. K. The soil solution. (PPP) $1.25 net.
620. Close, C. P., *et al.* Asparagus, fertilizer tests (Md. Bul. 151). (ZZ)
621. Haskins, *et al.* Inspection of commercial fertilizers (Mass. Agr. Exp. Sta. Bul. 140). (D)
622. Johnson, S. W. How crops feed. (O) $1.50.
623. Myers, W. S. Food for plants. (QQQ)
624. Rhode Island. Continuous corn culture (R. I. Exp. Sta. Bul. 113). (M)
625. Rhode Island. Further experiments in top-dressing grassland (R. I. Exp. Sta. Bul. 90). (M)
626. Rhode Island. Cooperative experiments in top-dressing grassland (R. I. Agr. Exp. Sta. Bul. 95). (M)
627. Rhode Island. A test of nine phosphates with different plants (R. I. Agr. Exp. Sta. Bul. 114). (M)
628. Rhode Island. The gain in nitrogen during a five-year pot experiment with different legumes (R. I. Agr. Exp. Sta. Bul. 147). (M)
629. Rhode Island. Plant peculiarities as shown by the influence of sodium salts (R. I. Agr. Exp. Sta. Bul. 104). (M)
630. Rhode Island. Concerning the agricultural value of sodium salts (R. I. Agr. Exp. Sta. Bul. 106). (M)

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631. Stewart, J. H., *et al.* Field experiments with fertilizers (W. Va. Bul. 131). (GGG)
632. Voorhees, E. B. Commercial fertilizers: Composition and use (Farmer's Bul. 44). (Bb)
633. Voorhees, E. B. Fertilizers. (N) $1.25.

634. Halligan, J. E. Soil fertility and fertilizers. (PPP)

19. Plant life, propagation, and tests.

645. Bailey, L. H. Plant breeding. (N) $1.25.
646. Ballou, F. H., *et al.* Potatoes, culture in Ohio (Ohio Bul. 218). (RRR)
647. Beal, W. J. Seed dispersal. (CC) 35 cents.
648. Corbett, L. C. The propagation of plants (Farmers' Bul. 157). (Bb)
649. Coulter, J. M. Plant studies. (YY) $1.25.
650. Craig, A. G. Potatoes, test of varieties (Washington Bul. 94). (SSS)
651. Gray, Asa. How plants grow. (BBB) 64 cents net.
652. Grubb, E. H. Potato culture on irrigated farms of the West (Farmers' Bul. 386). (Bb)
653. Hinson, W. M., *et al.* Tobacco seed beds, management (Conn. Bul. 166). (G)
654. Johnson, S. W. How crops grow. (O) $1.50.
655. Jones, L. R. Vermont grasses and clovers (Vt. Bul. 94). (JJJ)
656. Jordan, W. H., *et al.* Potatoes, fertilizer tests (N. Y. State Bul. 327). (L)
657. Kennedy, P. B. Alfalfa, test of varieties (Nevada Bul. 72). (LLL)
658. MacDougall, D. T. The nature and work of plants. (N) 80 cents.
659. Maine. Experiments in breeding sweet corn (Maine Bul. 183). (I)
660. Maine. Proper growing and handling of potato "seed" stock (Maine Bul. 435). (I)
661. Masters, M. T. Plant life on the farm. (O) $1.
662. Osterhout, W. J. V. Experiments with plants. (N) $1.25.
663. Rhode Island. Further results in a rotation of potatoes, rye, and clover (R. I. Agr. Exp. Sta. Bul. 135). (M)
664. Rhode Island. Grass experiments (R. I. Agr. Exp. Sta. Bul. 82). (M)
665. Rhode Island. Potatoes (R. I. Agr. Exp. Sta. Bul. 111). (M)
666. Rhode Island. The soy bean (R. I. Agr. Exp. Sta. Bul. 92). (M)
667. Spillman, W. J. Farm grasses of the United States. (O) $1.
668. Sutton & Sons. Culture of vegetables and flowers from seeds and roots. (TTT) $1.25 net.
669. Waugh, F. A. The graft union (Hatch. Bul. (Tech.) No. 2). (D)
670. Willis, C. Alfalfa, test of varieties (S. Dak. Report for 1910). (UUU)

671. Peabody and Hunt. Elementary biology—Plants. (N)
672. Sargent, F. L. Plants and their uses. (HH)

20. Soils, geology, physical geography, soil fertility.

680. Brooks, W. P. The chemical analysis of soils (Mass. Agr. Exp. Sta. Circ. 29). (D)
681. Burkett, C. W. Soils. (O) $1.25.
682. Davis, W. M. Elementary physical geography. (CC) $1 net.
683. Fletcher. Soils. (P) $2 net.
684. Free, E. E., *et al.* The control of blowing soils (Farmers' Bul. 421). (Bb)
685. Gilbert, G. K. An introduction to physical geography. (YY) $1.25 net.
686. Hills, J. L., *et al.* Soil classifications and adaptations (Vt. Bul. 154). (JJJ)
687. King, F. H. The soil. (N) $1.50.
688. McCall, A. G. The physical properties of soils. (O) 50 cents net.
689. Merrill, G. P. Rocks, rock weathering, and soils. (N) $4.
690. Rhode Island. Field experiments on individual farms (R. I. Agr. Exp. Sta. Bul. 148). (M)

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691. Roberts, I. P. The fertility of the land. (N) $1.50.
692. Snyder, H. Soils and fertilizers. (N) $1.25.
693. Spillman, W. J. Renovation of worn-out soils (Farmers' Bul. 245). (Bb)
694. Spillman, W. J. Soil conservation (Farmers' Bul. 406). (Bb)
695. Taft, Wm. Conservation of the soil (Circ. 38). (B)
696. Tarr, R. S. Elementary geology. (N) $1.40.
697. Vivian, A. First principles of soil fertility. (O) $1 net.
698. Whitney, M. Soil fertility (Farmers' Bul. 257). (Bb)

699. Lyon, T. L., *et al.* Soils. (N)

21. Spraying and fumigation.

710. Clinton, G. P., *et al.* Spraying experiments (Conn. State Report, 1909–10). (G)
711. Connecticut. Proprietary and home-made miscible oils for the control of the San José scale (Storrs Bul. 54). (H)
712. Connecticut. Petroleum emulsion for the San José scale (Storrs Bul. 49). (H)
713. Galloway, B. T. Potato diseases and their treatment (Farmers' Bul. 91). (Bb)
714. Goodwin, W. H. Spraying machinery (Ohio Bul. 216). (RRR)
715. Hinds, W. E. Carbon bisulphid as an insecticide (Farmers' Bul. 145). (Bb)
716. Howard, L. O. The brown-tail moth and how to control it (Farmers' Bul. 264). (Bb)
717. Howard, L. O. The gypsy moth and how to control it (Farmers' Bul. 275). (Bb)
718. Johnson, Willis G. Fumigation methods. (O) $1.
719. Lodeman, E. G. The spraying of plants. (N) $1.25.
720. Lutman, B. F. Spraying experiments on potatoes (Vt. Bul. 153). (JJJ)
721. Marlatt, C. L., *et al.* The control of the codling moth and apple scab (Farmers' Bul. 247). (Bb)
722. Marlatt, C. L. Important insecticides: Directions for their preparation and use (Farmers' Bul. 127). (Bb)
723. Orton, W. A. Spraying for cucumber and melon diseases (Farmers' Bul. 231). (Bb)
724. Rhode Island. When to spray. Formulas and notes on spraying (R. I. Agr. Exp. Sta. Bul. 100). (M)
725. Scott, W. M., *et al.* Spraying peaches for the control of brown-rot, scab, and curculio (Farmers' Bul. 440). (Bb)
726. Slingerland, M. V., *et al.* Insects, injurious, treatment (Cornell Bul. 283). (K)
727. Stone, G. E., *et al.* Fungicides, insecticides, and spraying directions (Mass. Agr. Exp. Sta. Bul. 123). (D)
728. Swingle, W. T. The prevention of stinking smut of wheat and loose smut of oats (Farmers' Bul. 250). (Bb)
729. Van Slyke, L. L., *et al.* Lime-sulphur wash, preparation (N. Y. State Bul. 329). (L)
730. Waite, M. B. Fungicides and their use in preventing diseases of fruit (Farmers' Bul. 243). (Bb)
731. Wallace, E. Lime-sulphur preparations, injurious effects (Cornell Bul. 288). (K)
732. Weed, C. M. Insects and insecticides. (O) $1.50.
733. Whetzel, H. H. Diseases of plants, treatment (Cornell Bul. 283). (K)

22. Textbooks and manuals for schools.

(Agricultural.)

745. Barto, D. A. Manual of agriculture, soils and crops. (CCC) 50 cents net.
746. Bricker, G. A., *et al.* Agricultural words. (VVV) 5 cents.
747. Burkett, Stevens, and Hill. Agriculture for beginners. (CC) 60 cents net.
748. Corbett, L. C. The school garden (Farmers' Bul. 218). (Bb)

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749. Coulter, J. M., *et al.* Practical nature study and elementary agriculture. (YY) $1.35.
750. Crosby, D. J. School exercises in plant production (Farmers' Bul. 408). (Bb)
751. Crosby, D. J., *et al.* School lessons on corn (Farmers' Bul. 409). (Bb)
752. Davis, C. W. Rural school agriculture. (O) $1.
753. Davis, K. C. Productive farming. (S) $1.
754. Duggar, J. F. Agriculture for southern schools. (N) 75 cents.
755. Farrar, H. A. A year of agriculture in a rural Vermont high school (Middlebury Coll. Bul. 5). (WWW)
756. Field, Jessie. Farm arithmetic. (XXX) 15 cents.
757. Fisher and Cotton. Agriculture for common schools. (EEE) $1.
758. Fream, W. Elementary agriculture. (U) $1.25 net.
759. Goff, E. S., *et al.* First principles of agriculture. (BBB) 64 cents net.
760. Halligan, J. E. Fundamentals of agriculture. (CCC) $1.25 net.
761. Hatch and Haselwood. Elementary agriculture. (YYY) 50 cents.
762. Hays, W. M. Farm development. (O) $1.50 net.
763. Hillma, F. H. Testing farm seeds in the home and in the rural school (Farmers' Bul. 428). (Bb)
764. Hodge, C. F. Nature study and life. (CC) $1.20 net.
765. Howe, F. W. How to test seed corn in school (Of. of Exp. Sta. Circ. 96). (Ba
766. Hurd, W. D. Course in agriculture for high schools and academies in Maine (AAAA)
767. Jackson and Daugherty. Agriculture through the laboratory and school garde. (O) $1.50 net.
768. James, C. J. Practical agriculture. (YY) 80 cents net.
769. Mass. State Forester. The evergreens: Methods of study in public schools (Mass. State Forester Bul. 4). (F)
770. McLennan, J. Manual of practical farming. (N) $1.50.
771. Moore, W. M., *et al.* Forest nurseries for schools (Farmers' Bul. 423). (Bb)
772. Nolan, A. W. One hundred lessons in agriculture. (YYY) 65 cents.
773. Shaw, E. E. Gardening. (P)[1]
774. Shoesmith, V. M. The study of corn. (O) 50 cents net.
775. Soule and Turpin. Agriculture: Its fundamental principles. (ZZZ) 75 cents
776. Stevens, F. L., *et al.* A practical arithmetic. (EEE) 65 cents.
777. Upham, A. A. An introduction to agriculture. (YY) 75 cents net.
778. Warren, G. F. A secondary course in agronomy (Of. of Exp. Sta. Circ. 77). (Ba
779. Weed, C. M. Farm friends and farm foes. (CCC) 90 cents net.
780. Weed, C. M., *et al.* The school garden book. (EEE) $1.25.
781. Wilkinson, J. W. Practical agriculture. (BBB) 80 cents net.
782. Wilson, A. D., *et al.* Agriculture for young folks. (Q) $1.
783. Winkenwerder, H. A. Forestry in the public schools (U. S. Forest Service Circ. 130). (Bg)

---

784. Comstock, A. B. Handbook of nature study. (MMM) $3.65 net.
785. Burkett, C. W., *et al.* Farm arithmetic. (O)
786. Budd, J. L., *et al.* American horticultural manual. (JJ)
787. Call, L. E., *et al.* A laboratory manual of agriculture. (N)
788. Stebbins, C. A. The principles of agriculture through the school and home garden. (N)
789. Calfee, J. E. Rural arithmetic. (CC)
789.1 Ross. A dairy laboratory guide.

[1] A volume in the "Library of Work and Play," for sale only as a complete set of 10 volumes at $4.75.

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23. Trees and shrubs.

Not for fruit.

790. Bates, C. C. Windbreaks (U. S. Forest Service Bul. 86). (Bg)
791. Blakeslee, A. F., *et al.* Trees in winter. (N)
792. Blakeslee, A. F., *et al.* New England trees in winter (Storrs Bul. 69). (H)
793. Gifford, John. Practical forestry. (YY) $1.20.
794. Jones, L. R., *et al.* Vermont shrubs and woody vines (Vt. Bul. 145). (JJJ)
795. Maine. Wood-lot suggestions (Maine Bul. 402). (I)
796. Mass. State Forester. Forest trees of Massachusetts, how you may know them (Mass. State Forester Bul. 1). (F)
797. Mass. State Forester. Massachusetts wood-using industries (Mass. State Forester Bul. 3). (F)
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799. Mass. State Forester. How and when to collect white-pine seed (Mass. State Forester Bul. 6). (F)
800. Mass. State Forester. Forest mensuration of the white pine, how to estimate standing timber (Mass. State Forester Bul. 7). (F)
801. Mass. State Forester. Forest fire-fighting equipment in our towns (Mass. State Forester Bul. 10). (F)
802. Mass. State Forester. How to make improvement thinnings (Mass. State Forester Bul. 8). (F)
803. Pinchot, G. Forest planting (U. S. Forest Service Circ. 61). (Bg)
804. Pinchot, G. A primer of forestry (Farmers' Bul. 173). (Bb)
805. Pinchot, G. A primer of forestry: Part II, practical forestry (Farmers' Bul. 358). (Bb)
806. Spring, S. N. White pine: Natural replacement on old fields in New England (U. S. Bureau of Forestry Bul. 63). (Bh)

24. Weeds and their eradication.

815. Cates, J. S. The eradication of quackgrass (Farmers' Bul. 464). (Bb)
816. Cates, J. S., *et al.* A method of eradicating Johnson grass (Farmers' Bul. 279). (Bb)
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818. Cox, H. R. The eradication of bindweed, or wild morning-glory (Farmers' Bul. 368). (Bb)
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821. Pammel, L. H. Weeds of the farm and garden. (O) $1.50 net.
822. Rhode Island. Weeds, their eradication and control (R. I. Exp. Sta. Bul. 133). (M)

25. Zoology, general and economic.

(See also above references 360, 361.)

830. Linville, H. R., *et al.* A textbook in general zoology. (CC) $1.20 net.
831. Osborne, H. Economic zoology. (N) $2.

VI. For betterment of country life and education.

835. Abbey, M. J. Normal-school instruction in agriculture (U. S. Of. of Exp. Sta. Circ. 90). (Ba)
836. Anderson, W. L. The country town. (BBBB) $1.
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838. Bailey, L. H. The State and the farmer. (N) $1.25 net.
839. Bailey, L. H. The training of farmers. (CCCC) $1 net.
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862. King, F. H. Farmers of 40 centuries. (NNN) $2.50.
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866. McKeever, W. A. Farm boys and girls. (N) $1.50.
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871. Robison, C. H. Agricultural instruction in the public high schools of the United States. (KKKK)
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873. Snedden, David. The problem of vocational education. (LLLL) 35 cents net.
874. Stiles, C. W., *et al.* The sanitary privy (Farmers' Bul. 463). (Bb)
875. True, A. C., *et al.* The American system of agricultural education (U. S. Of. of Exp. Sta. Circ. 106). (Ba)
876. Williams, Dora. Gardens and their meaning. (CC) 80 cents net.
877. Wilson, E. T. Modern conveniences for the farm homes (Farmers' Bul. 370). (Bb)

[1] A volume in the "Library of Work and Play," for sale only as a complete set of 10 volumes at $1.50.

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Hunt, Thos. F. The young farmer. (O)
Saint Maur, Kate. A self-supporting home. (N)
Savage, W. G. Milk and the public health. (N) $3.

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Bb Farmers' Bulletins of the U. S. Dept. of Agriculture.
Bc Bureau of Statistics of the U. S. Dept. of Agriculture.
Bd Division of Statistics of the U. S. Dept. of Agriculture.
Be Section of Foreign Markets of the U. S. Dept. of Agriculture.
Bf Division of Foreign Markets of the U. S. Dept. of Agriculture.
Bg Forest Service of the U. S. Dept. of Agriculture.
Bh Bureau of Forestry of the U. S. Dept. of Agriculture.
Bi
Bj
Bk
Bl

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Maine Agricultural Experiment Station,[1] Orono, Me.
New Hampshire Agricultural Experiment Station,[1] Durham, N. H.
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New York, State, Agricultural Experiment Station,[1] Geneva, N. Y.
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Wisconsin Agricultural Experiment Station,[1] Madison, Wis.

[1] Apply to the director.

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APPENDIX.

ES OF MASSACHUSETTS AGRICULTURAL SCHOOL.[1]

By WILLIAM T. BAWDEN,

Managing Editor of "Vocational Education."

a meeting of representatives of State departments of education held at Staten d, N. Y., the Massachusetts plan of agricultural instruction was described by its ator and director, Rufus W. Stimson, agent for agricultural education of the board, Boston. So much interest was manifested by the men from the other States Mr. Stimson invited a group of those present to accompany him on one of his trips pection in order to visit a number of schools in operation and to study the experi- at first hand. The party consisted, in addition to Mr. Stimson, of three repre- tives of State departments of education having charge of the work in agriculture— n S. Hawkins, Albany, N. Y.; Lindley H. Dennis, Harrisburg, Pa.; Lewis H. , Trenton, N. J.—and the writer of this report.

e party met at Northampton, Mass., on Monday morning, June 9, 1913, visited ls in the immediate vicinity, and proceeded thence to Hadley, Amherst, Peter- and Northboro. The trip was made in Mr. Stimson's touring car, which not added greatly to the enjoyment of the party, but also made it possible to cover territory than could have been attempted otherwise and permitted visits to a er of the boys on their home farms. On Wednesday evening the automobile f over 200 miles came to an end at the Back Bay Station in Boston in time to the 5 o'clock train for New York.

e first school visited was Hopkins Academy, at Hadley, a village of about 2,000 itants. Under the principalship of Franklin E. Heald, this school three years ntroduced a four-year vocational agricultural course. By thus attempting to itself more closely to the needs of a small community in which farming interests at least equal in importance to those of higher education, a most interesting ormation has been wrought in a typical traditional New England classical my. The records show that under the old conditions the proportion of enter- udents who were graduated reached the low-water mark of 40 per cent, whereas ear it was 88 per cent.

e work in the agricultural course is of secondary grade, and it is regarded as de- e, though not absolutely essential, that pupils shall have completed the work elementary school. There are 20 boys in the school, of whom 12 are taking the e in agriculture. The instructor is E. J. Burke, a graduate of the Massachusetts ultural College. The students of the first two years meet the instructor in the ing, and those of the last two years in the afternoon. Practically all of the boys their free half days in taking the regular academic subjects planned for the e, which is as follows, the numerals indicating number of periods weekly:

year: Agriculture, 20; English, 5; general science, 3; social science, 3.
d year: Agriculture, 20; English, 4; biology, 5.
year: Agriculture, 20; English, 4; chemistry, 5.
h year: Agriculture, 20; English, 4; physics, 5.

[1] This appendix reproduces portions of a report which was jointly agreed upon by the four visitors mentioned in the first paragraph, which was written by Mr. Bawden, and which was published in the November, 1913, issue of *Vocational Education*.

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The school is not large enough to make practicable special classes in English for the agricultural students; so the simple plan has been adopted them in the regular classes. Whenever the home project work require time of a pupil, he is excused from all classes temporarily. One small clas no special equipment, has been set aside for the work in agriculture. grounds include space for demonstration plats, and a small orchard whi used as a laboratory for the study of spraying, grafting, etc. The land are not essential parts of the scheme, however; so that it could be duplic village or rural high school situated within reach of boys living on the far

The second type of school visited is the Smith's Agricultural School at N The feature of this school that interested the visitors most is its unique a The illustrations suggest how admirably the building is adapted to its p. 32.)

By placing four building units so as to inclose a rectangle of suitable (Plate A), and roofing over the inclosed space, an "arena" is provided wh number of distinctive purposes (see Plate B). The auditorium, with its is so situated as to command a view of the inclosure when sliding partitio On Wednesday, May 28, 1913, a horse show was staged which lasted afternoon and evening. Prize ribbons were awarded for exhibits in 17 diffe The boys put up a tent and built temporary stalls in the rear of the buildi the animals, and the arena afforded an ideal place for the exhibits (see f The display included single and double teams of draft and of driving and girls riding in the saddle, Shetland ponies driven by children, and f

An expert from the Massachusetts Agricultural College was present to as ing the exhibits, and, as part of the evening program, an official announcer tion to the fine points of the various winning horses. At appropriate tim horses were led before the audience, and the practical demonstration of h was made complete. There was no lack of fine horses, as exhibits were near-by stock farms and even from as far away as Springfield.

Concerning the school itself the following statements from the annou explanatory:

The institution has three affiliated schools: School of agriculture, gir industries, and boys' school of industries. The different trades and taught in the school are known as departments. The boys' school of indus has a department of cabinetmaking and a department of machinists, and is the advisability of establishing a department of house carpentry. The of industries already has a department of homemaking, and is con advisability of establishing a department of sewing and dressmaking.

The industrial work of each department is in the hands of trained and workmen. In all cases these workmen are taken from active life rathe the teaching profession. In addition to the expert workmen found in th work, experienced teachers have charge of the students in their nonind in English, history, citizenship, science, etc.

The work of the students falls under three heads, with the following tim Productive work, 50 per cent; subjects closely related to the productive cent; subjects that prepare for citizenship and leisure, 20 per cent. slavishly followed, this is regarded as the best distribution of a student's t can make in the present status of vocational education.

The school is available for any boy or girl between the ages of 14 and 25. tional qualifications are demanded. Boys and girls who have not co seventh grade find the work exacting. They are not, however, exclud school until they demonstrate their inability to do the work. No studen to remain in the school who does not come for the purpose of learning a trad ing an occupation or who does not show sufficient ability to master the r of the industrial part of his work.

In a word, the institution is for any boy or girl at least 14 years old w for one reason or another, intend to continue in the regular public scho wants to fit himself or herself for earning a living in an occupation or trad The school does not aim to fit its pupils to meet the examinations of other institutions.

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The director of the school is Dr. Herbert N. Loomis; Thomas Bradlee is in charge of the agricultural work; Walter S. Graffam is head of the boys' school of industries; and the work for girls is under the direction of Miss Mildred J. Taylor and Miss Catherine A. Murray.

The third type of school visited is the consolidated rural school, with high-school department, at Petersham. This school is out in the open country, 10 miles from the nearest railroad, and occupies a beautiful site of about 10 acres on a hilltop. The equipment of the school includes a greenhouse 20 by 30 feet. The principal is F. D. Reed, and the director of the agricultural work is L. B. Boston.

When the visitors entered the room the class in agriculture was at work upon a very practical problem in balanced grain rations, which grew out of a letter which the instructor had received the day before. The letter was from a neighboring farmer and read as follows:

I am uncertain as to what is the best grain ration to feed my three cows, and any information along this line would be appreciated. They are in a rather poor pasture and I am at present feeding grain as follows:

"Spot," a grade Holstein calved March 4; April milk yield, 1,075 pounds; May, 1,175 pounds; at present giving from 33 to 36 pounds per day; gets 2 pounds cottonseed meal, 4½ pounds corn meal, and 4½ pounds wheat bran per day.

"Daisy," a brown Jersey due to calve July 8; giving about 12 pounds milk per day; gets 2 pounds bran and 2 pounds corn meal per day. This cow will be dried off within a couple of weeks, but I would like to know how to best handle her when fresh next month.

The third cow is of no particular breed that I know of; was fresh last September and due to calve next September; giving 15 to 18 pounds of milk per day now; she gets 2 pounds corn meal, 2 pounds bran, and 1½ pounds cottonseed per day.

I am selling whole milk to one of my neighbors at 40 cents per 8½ quart can and want as cheap a grain ration as possible to produce a large flow of milk.

Working from the given data the class prepared a statement of the proper methods of feeding, together with an estimate of the probable financial return. It would be difficult to find a more suggestive example of the ways in which the present-day school is recognizing and meeting its opportunities for social service, utilizing them at the same time for the maximum of educational values.

In this school, as in the others described, the agricultural instructor devotes his entire time to two sections of students, a beginning section in the mornings and an advanced section in the afternoons. A boy may take this work only, spending the rest of the time on the farm, or on his free half days he may elect one or more of the regular high-school subjects.

The fourth school is that at Northboro, under the direction of John H. Fay. It is in successful operation without any land for laboratory purposes. Class study is carried on in a vacant store rented for the purpose, and all projects are carried out on the home farms.

INDIVIDUAL PROJECTS DESCRIBED.

The following is the very interesting record of Chester Spinney, Petersham school, for the summer of 1912: Vegetable garden, five-eighths acre, net profit, $44.35; credited self for labor, $12; boy's return, $56.35; this vegetable garden constituted the "project" which he carried on under school supervision. In addition, he set out and cultivated 1,000 strawberry plants; raised 1 acre of corn and one-fourth acre of potatoes; plowed and planted 1 acre of millet and one-fourth acre of buckwheat; cared for 3 cows, 1 horse, and 50 hens. Chester's father was incapacitated by an accident, so that the boy did all the work that was done on the home place that summer. A careful account was kept of work performed and produce sold, which showed that he was entitled to a credit of $164.60 for this nonproject work. Thus the grand total of return for the project period, which included the growing and the harvesting seasons, was $227.03.

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During the present season, 1913, Gordon Nightingale, also at the Petersham school, is undertaking as his "project" the care of 4 dairy cows, raising 3 calves, 2 pigs, and 175 chickens. He is keeping careful records of the feed consumed, the amount and quality of milk produced, and eggs and chickens marketed. Besides this school-supervised work he has assumed the responsibility of one-half acre of vegetable garden and 1 acre of corn; he set out in the spring an orchard of 3½ acres, 345 trees of three varieties of apples, and between the rows of young trees is raising crops of corn, turnips, and mangels. Figure 4 shows one of Gordon's daily reports.

In 1912 Albin Anderson, a pupil at the Northboro school, undertook as his project one-sixth acre of potatoes, his father at the same time putting in a crop of 3½ acres. Both sprayed with arsenate of lead to protect the growing plants from the potato beetle. In addition, as a result of what was learned in school, the boy sprayed with Bordeaux mixture in July in the effort to control blight. The father, however, could not be persuaded that the extra labor was worth while, the usual decrease in the potato crop in this section due to blight being regarded as inevitable. At harvest time the boy's methods were more than vindicated by a good yield of excellent quality, while the plants in the father's entire field were killed early by blight and the yield was markedly deficient.

In this connection it may be appropriate to refer to another instance of a school's contribution, through its teacher, to the solution of practical farm problems, the details of which came to the attention of the agent of the State board. It happened one day that a valuable horse was severely gored in the flank by a vicious cow. There was no one about the neighborhood who could care for the wound, and in fact its seriousness was not fully realized at the time. It seemed to be necessary that the horse be kept at work, and this, with the warm weather, soon produced a condition of fever, swelling, and suppuration, and the farmer realized that he was threatened with the loss or disablement of a valuable animal. About this time the agricultural instructor came to visit the boy's project, and noticed at once the critical condition of the horse. He secured some silk thread from the farmer's wife, and suture needles from his kit, prepared an antiseptic solution, and with the assistance of the boy and his father treated the wound. He then instructed the boy in the proper care of the wound, and in a few days it healed perfectly. The farmer informs his neighbors now in no uncertain terms that "that young fellow they've got down there to teach farming *knows his business.*"

In the school at Northboro an experiment in fattening chickens for the market was undertaken as a class project in October, 1912. Each of the 11 members of the class brought in 4 chickens. These were all spring cockerels, culls from flocks that were not considered suitable for carrying through the winter. The fattening of these for the market, therefore, was one of the normal problems of the poultry raiser.

Crates were built in which the chickens were confined during the time of the experiment. They were fed twice daily, at 7 a. m. and 7 p. m., all they would eat of a batter made of corn meal and wheat middlings mixed with skim milk. Thirty minutes daily for the 18 days were required for the work of feeding, 2 hours for weighing, and 6 hours for killing and dressing; total labor, 17 hours. The following is a table of the cost items, labor not being considered:

Grain, 175 pounds, at $0.0175	$3.07
Skim milk, 11 cans, at $0.15	1.65
Leg bands, for identification of birds	.35
Use of crates, 10 per cent of cost	.40
Cost to feed 44 chickens	5.47
Cost to feed 1 chicken	.13

Each pupil kept a careful record throughout the progress of the work and performed the necessary computations to determine the profits realized. Such an experiment,

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besides training in methods of procedure, should throw light on the conditions under which it pays to fatten for the market, and when it is better business to sell without the labor and expense of fattening. The opportunities for related work in mathematics and language are sufficiently obvious.

CONCLUSIONS.

This account must now be brought to a close with a brief summary of the important considerations that come to the mind of the critical observer of the Massachusetts plan.

1. **High per capita costs.**—Creative work of the type observed in these schools means the maintenance of a high level of enthusiasm on the part of the workers, as well as constant intimate contact with the very practical and vital economic problems of farming. In common with creative work in any other line of endeavor, it demands men of more than average energy and initiative. Under existing conditions of supply and demand, it has been impossible to find instructors with the necessary qualifications for this work at anything like the prevailing rates of salaries for teachers. In the schools visited on this trip the salaries of the agricultural instructors range from $1,000, for one in his first year on the job, to $1,800. In more than one instance the agricultural instructor is paid more than the principal of the school. As already noted, each such instructor is expected to devote his entire time to approximately 20 students.

It is necessary to face squarely the objection that education under these conditions is expensive. It would certainly be so regarded in certain parts of the country, for example, where the people are accustomed to paying teachers in the rural schools $500 or less. The decision that a proposed course of action is expensive, however, must rest upon other considerations than a mere statement of cost in dollars and cents; such as, what returns from the expenditure can be shown, what will be the results of adopting the alternatives of doing without or managing in some other way, how badly is it needed?

Here is found the justification for State aid. After it has been established that the proposed form of education is important and necessary, it still fails of being put into effect in many places because the extra burden is too great for the community to assume. But the expected advantages are not to be confined to the community; hence the State is justified in encouraging the needed development by financial assistance. According to the terms of recent legislation in several States, the State pays two-thirds of the salary of the teacher, or one-half of the operating expenses (substantially the same amount of assistance), and thus reduces the burden to a point where the community can properly assume it.

It is to be remembered, further, that these teachers are employed on a 12-months' contract, which allows one month's vacation and requires each teacher to spend two months, during the winter, in "professional improvement" preparing for increased efficiency. This study is done under the supervision of the State agent. The instructor is, of course, on duty all the time during the planting, cultivating, and harvesting seasons.

2. **Agricultural education an investment, not an expense.**—Without doubt, there are localities where the duplication of the Massachusetts experiment would be rank extravagance, or possibly waste of public money. The indiscriminate introduction of such work everywhere would be a most unreasonable proposal. The present tendency, however, gradually coming to consciousness, is to regard money devoted to education as essentially of the nature of investment rather than expense. When this view is applied to agricultural education, in common with other forms of vocational education, its significance is more easily grasped than in the case of general education. And it is not necessary in making this statement to contend that the

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general proposition is any more true in the former case than in the latte is easier to see it and to demonstrate it.

3. Practical nature of the work.—The feature of the plan that most i visitor is the practical nature of the work undertaken. The instructor i real farm work, and, with his students, deals directly with live farm p not with artificial experiments in a school garden or laboratory.

4. A sane point of view.—The members of the visiting party were u expressing their approval of the fundamental principles upon which chusetts plan is based. The entire experiment rests upon a strictl basis. No boy is admitted to one of these classes who does not actu home upon a farm, or who is unable to arrange to do productive farm parent or guardian or employer must guarantee to the school that the b unrestricted control of the piece of land, flock of poultry, or other agre ditions of the proposed project. The amount of time to be allowed fo also expressly understood.

The instructor, up to the limit of his ability, takes a fatherly or brot in many vegetable and flower gardens in the neighborhood; he acts in capacity to as many of the agricultural undertakings of grammar-sch girls as he can reach; but this is all on the side. If the State departm tion would recognize such work, and give the necessary authorization fo vision, it could greatly reduce the per capita cost. But it has delibera to limit itself, so far as formal recognition is concerned, to work of an in with boys and girls who have definitely chosen to undertake real respon who are mature enough to profit by the experience.

In thus limiting formal recognition to supervision of boys and girls w nite plans for farm work, the board does not intend to minimize the i school garden work and other similar enterprises among the elementary dren. While such work can not be regarded as strictly vocational, it do prevocational or avocational values. In order to conserve all these v are constantly made to stimulate and direct the activities of the reg and the cooperation of interested groups of citizens. Help is offered and conducting "growing contests" and public exhibitions under school

So far as the instructors are concerned there is constantly kept in m of systematically becoming acquainted with the best types of farming munity and then of exercising a helpful influence in those districts wh needed. Every effort is made to promote more permanent tenure o the part of the teacher and genuine interest and pride in the locality trying to build up. In this work, as in all school work, the disastrou constantly changing teaching population constitute almost the worst must be contended against.

5. Supervision of unusual efficiency.—The master mind and the sour tion in this whole movement is the State agent. More than once the witnesses of his skill in meeting and utilizing situations as they arose. tor may be with the agent for several hours as they go about together in bile visiting each boy at his project. This time is spent in earnest about the details of the work, in the giving of advice and suggestion, an ing some message of encouragement from a successful project under wa and, finally, in the necessary criticism and correction of mistakes. Th is constantly in touch with the boys and their parents, upholding the instructors and, with the school trustees and members of advisory comm ing them with appropriate commendation and with accounts of the ach other districts.

The value to the teachers of the continual object lesson in sympa supervision can hardly be overestimated. So far as the members of

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party are concerned, it was agreed that this was one of the most helpful suggestions carried away from the entire trip.

6. All problems not yet solved.—The reader should not gain the erroneous impression that a perfect system has been evolved and that but little remains to be done but to transplant it. There are plenty of unsolved problems; that is why the work is so interesting. High per capita cost, the conservatism of rural populations, the difficulty of securing and retaining efficient teachers, the perfecting of machinery and methods—these and other problems will continue to demand thoughtful study. Even the boys and girls present problems of their own in the rural school, as in the city school. Every instructor in vocational subjects will be able to sympathize with the agricultural instructor who finds the progress of his work impeded by the necessity of dealing with the boy who just wants to try it to see what it is like and the boy who discovers other interests as soon as it appears that the new kind of school means real hard work.

7. The experiment successful.—If it would be misleading to leave the impression of achieved perfection, it would, on the other hand, be unjust to withhold commendation of the plan as a whole. It is not necessary for the visitor to take the instructor's or the agent's word for it; he can observe for himself that the new kind of school is training in vocational efficiency, is developing boys and girls of energy and initiative, is fostering a spirit of independence and perseverance, and is accustoming young people to the experience of successfully coping with real difficulties.

The work of these agricultural schools and departments is principally with boys and girls who have discontinued their work in the regular schools or who have indicated a desire for some form of training other than that preparing for higher schooling. In making successful men and women out of boys and girls whose needs have been met only in part by the existing schools, and in providing a training in vocational efficiency, with due regard to social responsibilities, for those who can not utilize the traditional high-school and college education, the agricultural school is meeting genuine social needs.

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PHYSICAL GROWTH AND SCHOOL PROGRESS

A STUDY IN EXPERIMENTAL EDUCATION

By BIRD THOMAS BALDWIN
PROFESSOR OF PSYCHOLOGY AND EDUCATION
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WASHINGTON
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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, November 4, 1913.

SIR: There is a growing conviction on the part of teachers and students of education that there must be a close relation between the physical and mental development of children and that this relation must be known and respected. As yet, however, we have little definite knowledge on the subject. Guesses and theories based on scant and unscientific observations are easily made and are numerous. Sound knowledge can be had only by careful scientific investigation—thoughtful interpretation of accurate observations made under proper control. The accompanying manuscript, by Dr. Bird T. Baldwin, professor of psychology and education in Swarthmore College, embodies the results of a study of the physical growth and the school standing of a group of boys and girls between the ages of 6 and 18 years observed consecutively and makes, I believe, a valuable contribution to the literature of this subject. I recommend that it be published as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

To the SECRETARY OF THE INTERIOR.

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FOREWORD.

It should now be recognized that every child has at least five parallel ages: A *chronological* age, in years, months, and days; a *physiological* age, indicative of physical growth and maturity; a *mental* age, significant of intellectual capacity and ability; a *school standing*, or *pedagogical*, age, denotative of relative position in school grades; and a *moral* or *religious* age. These ages may or may not coincide in their stages of development. In a first-class school the school standing, or pedagogical, age and the mental age would be the same.

This monograph aims to present the results of a study of the physical growth, or *physiological* age, and the *school standing* of a group of boys and girls from 6 to 18 years of age when observed consecutively.

The scope or field of the investigation includes:

(1) A series of norms based on the height and age distribution, and weight and age distribution; the averages and average variations of individual increments of growth in height, weight, and lung capacity; and the individual growth curves in height, weight, and lung capacity, with health notes and weight-height and vital indexes.

(2) An investigation on school standing in marks, grades, and ages.

(3) The relation of physical development in height, weight, and lung capacity to school standing.

(4) A brief historical summary of the work in this field, with an annotated bibliography.

The chief value of the monograph consists in the fact that it is the first attempt to follow consecutively the same groups of children through the elementary and high schools, either in physical growth or school standing, or the relation of the two. Since the curves and records represent individual histories, they will be of permanent value. The monograph also aims to give the present status of the problem of physical growth.

The contents of the monograph are discussed from four points of view, in order to meet the needs of the wide range of interests of the individuals into whose hands it may fall. The aim, scope, methods, and results of the investigation are first discussed under the headings: (I) *The general problem*, which suggests the salient points without data or proof; the second section, (II) *The investigation*, includes a detailed treatment with specimen charts and tables with proofs and

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comments; the third section, (III) *The statistical material*, gives practically all of the data for detailed study as a basis for further investigations; and then follow the fourth section, (IV) *An historical summary of investigations in physical growth*, and a fifth section, (V) *An annotated bibliography of 336 titles*.

The conclusions drawn from the study are limited to the data at hand, which have been obtained from a detailed study of a limited number of individuals in a special type of schools where the facilities for measurement are excellent and where much attention is given to physical examinations and remedial training. The children, as a rule, come from "well-to-do" families. The heredity and health notes are given as far as possible for all whose growth curves are plotted. The writer has been collecting his data for several years, and no effort has been spared to secure the best available material in this country.

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PHYSICAL GROWTH AND SCHOOL PROGRESS.

I. THE GENERAL PROBLEM.

Teachers, psychologists, physicians, and parents are necessarily concerned with the physical growth and mental development of boys and girls. So much has been written within these two fields that we are now in a position to ask more detailed and specific questions in regard to particular periods or nodes of development. In our modern work in experimental education we greatly need consecutive studies through a long series of years, giving full, accurate, and systematic accounts of the physical growth and school progress of the same individuals. In previous studies, with a very few exceptions, it has been the method to measure or study a large group of children for one age, another group for the following age, another for the next subsequent age, and so on for the series included, and to derive a general average or conclusion from these data. For example, 1,000 children were measured for 6 years of age, another 1,000 at 7 years of age, and another at 8, and so on. The average for these groups gave some insight into how one child grew from year to year.

The present investigation makes an individual study of children from three of the very best schools in America, and presents consecutive observations as far as these were available. It aims to show, aside from the conclusions that the data furnish, the urgent need and necessity of life histories in all phases of educational work, if our subject is to be developed scientifically. The period covered is from 6 to 18 years of age, and the children have been under school medical inspection, directed play, and physical education. That these factors are important educational agencies is shown by the fact that, on the average, these children from the Horace Mann School, the University of Chicago Elementary and High School, and the Francis W. Parker School are taller and heavier than any other group of children so far recorded among over a million studied. The 33,840 measurements are unusually good, since they have been made continuously on nude children by trained anthropometrists who recorded the age in days, the measurements in small units, and the various health notes.

Among the important questions that this monograph aims to help answer are the following: What is the normal rate of growth for a

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child within a given group? How do children grow from year to year? What are the periods of accelerated or delayed growth? What relation does the growth of any one age or period have to subsequent periods? Do children retain their relative positions in height, weight, and lung capacity throughout their school course? If so, will these individual studies help to anticipate how tall a normal child will be at any subsequent year? What is the relation of growth in height to weight, and the relation of growth in lung capacity to weight, since these are the best criteria of nutrition and robustness of an individual? Are some children more mature physiologically at a given chronological age than others? If so, what relation does this accelerated physiological maturity bear to growth? How is growth enhanced, how arrested?

We shall never be able to answer all these questions completely until we have complete individual histories for all classes of children, but the individual records and the growth curves which we have worked out should be of value for such comparative studies. The individual records are given in Tables 4, 5, and 13 to 22 and figures 1 to 28.

For purposes of comparison with a norm (or average child for this group) the distribution Tables 2 and 3 may be consulted, and also the averages in Table 3. The increments of growth or the amount the child grows from year to year, or half year to year, may be obtained from Tables 4 and 5, and the largest individual measurements with per cents of gain from Table 8. The general conclusions are given on page 69, and while they have a very general application in various directions, they are limited in their strictest validity to the data included in this investigation.

The second section (B) of the investigation follows the same individuals through their school subjects from grade to grade. The data consist of 21,682 final term marks from the Horace Mann and Francis Parker Schools. It must be recognized, since we are investigating the school standing age and since the promotions are based on marks, that these records must be taken at their face value, because they represent school practice and because they offer tangible criteria of the efficiency of the individual and of the school.

The 11 charts give graphically the average mark, the age, and school grade from year to year in the school progress. These conclusions may be found on page 79.

After the question of normal, accelerated, and retarded school progress has been discussed empirically, the relation of physical growth to school standing is taken up on pages 71–97 in regard to height, weight, and lung capacity, with educational corollaries. The statistical material follows, and after this the historical summary.

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II. THE INVESTIGATION.

(A) PHYSICAL GROWTH.

1. THE DATA.

The investigation on physical growth, as here reported, is based on the consecutive measurements at yearly and half-yearly intervals, or both, of 861 boys and 1,063 girls from the University of Chicago elementary and high schools, the Francis W. Parker School of Chicago, and the Horace Mann School of Teachers College, Columbia University. The records include consecutive measurements on the same individuals for periods of from 3 to 12 years, giving a sum total of 12,500 measurements for height, 11,220 for weight, and 10,120 for lung capacity, or 33,840 measurements. In the general averages of the increments, the measurements of the Horace Mann School are for five or more consecutive years, and were taken, as a rule, at yearly intervals during the three fall months. The Francis W. Parker records were taken semiannually, during October and June, and the University of Chicago schools semiannually in about one-fifth of the records included and in the remainder annually. The individual records from these latter schools contain, in the distribution tables, a few consecutive measurements for periods of less than five years.

The measurements were made by the regular trained examiners and anthropometrists in the various schools, except in a few instances in the University of Chicago schools, where they were taken by the writer.[1] The children were nude, and the records for height were taken in millimeters or tenths of an inch; for weight they were recorded in decigrams or in tenths of a pound; for lung capacity deciliters or tenths of a cubic inch were used. At the Horace Mann School the unit of weight was changed from pounds to kilograms in 1905; at the University of Chicago schools kilograms and inches were changed to pounds and centimeters in 1904 and back to kilograms in 1910. The units also varied in a few cases at the Francis W. Parker School. This changing of units necessarily introduces a small error involved in the reduction of a fractional part of a large unit to a smaller unit, since it is more difficult to measure accurately with large units, and to further subdivide the unit after the measurement has been made increases any slight error involved in measuring.

[1] The writer is indebted to Profs. Charles H. Judd, Walter F. Dearborn, and Frank N. Freeman for helpful suggestions in methods of undertaking the investigation; to Drs. Raycroft, J. Anna Norris, Walter D. Wood, William H. McCastline, Clement L. Vaughan, and to Jeannette Seibert and Miss Flora L. Cook for assistance in obtaining records. The following graduate students have helped to check some of the tabulated results: Misses Miriam E. Dozier, Carrie Saunders, and Julia Cooper, of the University of Texas, and J. A. Blackburn and Grace W. Greene, of Swarthmore College.

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A large majority of the measurements were reported in millimeters, tenths of pounds, and tenths of cubic inches, and these units are used in the preparation of the tables and charts presented in this study.

2. METHODS OF TABULATION.

In order to facilitate methods for using the data and to obtain the yearly and half-yearly increments, each individual's records, together with the name or number, date of birth, and date of physical examination, were copied on small cards and later transferred to large sheets with the measurements and increments in opposite columns in order that the correlations between the initial measurement and the appended increments could be noted. This made it possible also to determine the effects of accelerated or arrested growth on succeeding periods, since a number of increments on the same individual were available.

Horace Mann School.

Name, ...; 2097 (boy); born June 2, 1899.

Date of measurement.	Jan. 9, 1903.	Oct. 27, 1903.	Feb. 3, 1905.	Nov. 1, 1905.	Nov. 19, 1906.	May 4, 1907.	Dec. 6, 1907.	Dec. 9, 1908.
Age (yrs. mo. da.)	3—7—7	4—4—25	5—8—1	6—4—29	7—5—17	7—11—2	8—6—4	9—6—7
Weight { pounds	36.25	40.50	45.75	47.90	54.24	56.54	59.72	66.44
Weight { kilograms	16.50	18.37	20.75	21.73	24.20	25.70	27.10	30.20
Height, centimeters	103.4	108.0	116.4	121.4	127.5	130.4	133.7	139.2
Lung capacity { cubic inches	20	30	74	90	106	108	118	120
Lung capacity { liters	.33	.49	1.21	1.47	1.73	1.77	1.93	1.96
INDICES.								
Weight-height	.160	.170	.173	.178	.197	.197	.200	.217
Vital	.019	.026	.057	.067	.071	.070	.071	.064

Height and weight measurements of Horace Mann boys, with yearly gains.[1]

			Gain.		Gain.		Gain.		Gain.
No. 1.									
Age (years)	14½	15	.....	15½	.....	16	.....	16½	.....
Height (centimeters)	164.3	.....	.....	170.1	5.8	.....	.....	173.7	3.6
Weight (pounds)	102.0	.....	.....	111.4	9.4	.....	.....	12.1	9.7
No. 2.									
Age (years)	14½	15	.....	15½	.....	16	.....	16½	.....
Height (centimeters)	171.7	.....	.....	175.8	4.1	.....	.....	176.2	.4
Weight (pounds)	134.5	.....	.....	140.5	6.0	.....	.....	149.5	9.0
No. 3.									
Age (years)	14½	15	.....	15½	.....	16	.....	16½	.....
Height (centimeters)	159.2	.....	.....	168.7	9.5	.....	.....	175.0	6.3
Weight (pounds)	102.0	.....	.....	117.5	15.5	.....	.....	128.0	10.5

[1] The normal height of a boy 15 years of age is 164 centimeters, and the normal weight 106 pounds.

Specimen transfer sheet.

This method is illustrated on the increment sheets that follow—Tables 4, 5, and 13–22. For averages and average variations of increments, six-month intervals were used. For example: 12–12½, 12½–13, 13–13½, 12–13, 12½–13½.

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To find the increments of growth in height, weight, and lung capacity for each individual, the ages at the time of measurement were first found for years, months, and days, but, in order to place the measurements for each individual into groups of yearly and half-yearly intervals, those made within three months and nine months above the year were considered as half years and the following interim, between nine months and the next three months, as full years. If two measurements fell within a six-months' period, the measurement nearest the age required by the interval was taken. No child's measurements, when placed in the yearly or half-yearly group, are more than three months from the exact age of the child, based on the date of last measurement and the date of birth. All measurements for more than a year's interval were necessarily eliminated in the calculation of the increment.[1]

3. HEIGHT AND AGE DISTRIBUTION.

The height and age distribution table includes records of three or more measurements of pupils in the University of Chicago schools and the Francis W. Parker School. The roman numerals refer to boys and those in italic to girls. The table otherwise is self-explanatory. In general, there is a fairly normal distribution of individuals slightly above the average or median height found by other investigators. These norms were found in order to determine the relative median heights and weights (i. e., the measurements above which and below which lie an equal number of individual measurements)[2] of the Chicago schools for a means of comparison with the groups of children studied by former investigators and for comparison with the norms used by Dr. Wood, of the Horace Mann School. The derived norms show, among other things, that the Chicago schools and the Horace Mann School form practically a homogeneous group in regard to height and age distribution of pupils. The differences of the two groups will be noted later, when a comparison of the growth curves of individuals is made.

[1] The writer wishes to take this opportunity to emphasize the urgent need of a long series of consecutive measurements on the same group of individuals, taken at the same time of day, by the same examiner, at regular six-months' intervals from the child's birthday, using throughout uniform units of measurements.

[2] The formula is $m = \frac{n+1}{2}$.

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TABLE 1.—*Height and age distribution—University of Chicago*

[Number of individuals—Boys, 501; girls, 703; total, 1,204.

Height.		Age in years.																					
		6		6½		7		7½		8		8½		9		9½		10		10½		11	
		B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.
Centimeters.	*Inches.*																						
115	45.276	2	3	2	4	3	3	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
116	.....	2	2	1	3	2	4	...	...	2	3	...	1	1	1	...	...	...	...	...	...	...	...
117	.....	2	2	1	3	2	6	3	1	1	3	...	...	1	...	...	...	...	...	...	...	...	...
118	.....	1	3	4	4	2	8	2	3	1	2	...	1	...	1	...	...	...	...	...	...	...	...
119	.....	3	1	2	4	2	2	1	4	1	3	...	...	...	...	...	...	...	...	...	...	...	...
120	47.245	3	...	1	1	3	3	2	4	1	6	1	2	1	1	1	...	1	...	...	...	...	...
121	.....	1	1	1	3	3	1	4	5	3	5	...	2	...	3	...	1	...	...	...	...	...	...
122	.....	1	1	...	2	3	7	4	2	1	6	1	8	1	2	...	2	1	...	...	...	...	...
123	.....	...	...	4	4	3	4	2	3	2	8	1	4	2	5	2	1	...	...	...	...	...	...
124	.....	...	1	1	2	2	4	1	6	2	7	4	5	3	4	...	4	2	...	...	...	2	...
125	49.213	2	...	1	...	3	1	6	2	3	2	1	4	2	6	2	4	2	1	1	...	1	...
126	.....	...	...	2	2	1	1	2	2	3	9	4	11	3	6	5	4	2	...	2	1	1	...
127	.....	...	...	1	1	1	1	3	3	4	6	2	3	3	6	1	4	...	2	...	1	1	...
128	.....	...	...	...	1	3	4	3	1	1	3	2	6	4	5	3	6	1	5	1	1	1	1
129	.....	...	...	...	...	1	3	3	1	5	3	4	3	3	3	3	7	3	2	1	4	...	3
130	51.182	...	1	...	...	1	...	4	2	6	5	2	6	7	5	6	8	7	5	2	2	3	1
131	.....	...	...	...	...	1	...	...	3	1	2	3	1	3	6	4	9	2	7	3	3	1	1
132	.....	...	...	1	...	...	...	1	5	5	2	3	2	4	3	3	9	3	5	4	4	...	1
133	.....	...	...	...	...	...	1	1	1	1	2	4	2	5	5	3	2	3	6	5	2	6	3
134	.....	...	...	...	...	...	...	1	...	1	5	3	2	6	1	6	3	5	9	3	3	10	4
135	53.150	...	...	...	...	...	...	...	...	1	2	2	1	5	3	3	3	3	10	4	5	4	4
136	.....	...	...	...	...	...	1	...	...	1	...	2	1	2	4	3	3	7	8	5	6	8	3
137	.....	...	...	...	...	...	...	...	...	...	...	4	4	2	4	7	3	4	4	2	1	4	3
138	.....	...	...	...	...	...	...	...	...	1	...	1	1	2	3	9	1	5	3	3	2	5	2
139	.....	...	...	...	...	...	...	...	...	2	...	1	...	1	2	1	2	4	4	5	1	8	1
140	55.192	...	...	...	...	...	...	...	...	...	...	1	...	2	2	1	...	6	2	6	6	7	2
141	.....	...	...	...	...	...	...	...	...	...	...	...	...	2	...	1	4	9	2	3	4	1	2
142	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	2	1	5	1	4	5	2
143	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	1	3	1	8	4	3	6
144	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	1	2	3	2	4	2
145	57.089	...	...	...	...	...	...	...	...	1	...	...	...	...	...	2	1	1	1	4	3	8	5
146	.....	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	1	1	2	6	10
147	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	2	2	1	6	4
148	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	1	4	3
149	.....	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	2	1	5
150	59.056	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	3	2
151	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1
152	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...
153	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1
154	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
155	61.023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
156	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
157	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
158	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
159	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
160	62.933	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
161	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
162	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
163	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
164	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
165	64.961	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
166	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
167	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
168	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
169	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
170	66.930	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
171	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
172	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
173	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
174	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
175	68.898	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Number of individuals		28	41	29	50	43	58	47	54	52	87	48	71	66	89	78	87	78	83	76	85	100	100
Median		116	114	119	117	121	121	125	123	128	125	131	126	131	130	134	131	136	132	139	137	139	143

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elementary and high schools and Francis W. Parker School.

Number of measurements—Boys, 1,586; girls, 2,358; total, 3,944.]

Age in years.																														No. of cases.	
11½		12		12½		13		13½		14		14½		15		15½		16		16½		17		17½		18					
B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.
																														9	10
																														8	19
																														10	15
																														10	22
																														9	14
																														14	17
																														12	21
																														12	30
																														16	29
																														17	33
																														24	21
																														25	36
																														16	27
		1																												20	33
2																														25	31
1	1		1	1																										42	37
	1	2		1																										21	33
1	3	2				1									1															29	39
1	2	2	3	1	1	1		1										1												35	30
1																														36	32
	3	3	2	3	1	1	1			1																				30	35
4	3		1			2	1	1	1					1																34	33
3	3	5	5	3	2	1			1	1																				36	41
4	5	6	7	2	2	1	3	1		1				1				1												43	48
4	5	1	4	3	2	2	1	3	1																					35	36
5	6	8	8	3	6	3	1	2	1			1																		39	42
3	6	6	5	2	10	4		1	2	2	3	2		1																37	43
4	3	5	5	4	3	2	3	1	4	2	3	1	2																	28	48
3	3	7	7	6	3	2	5	3	1	3	1																			43	34
4	3	5	10	2	3	4	6	2	2	2	1	1	1	1	1	1													1	32	37
5	6	9	5	6	4	4	5	2	6	3	2	1				1						1								47	37
2	6	6	8	7	4	4	4	2	4	6	1	2	1	2	1															38	48
1	4	10	6	1	7	6	4	1	5	2	1		2	1	4	3	1													34	44
2	4	4	2	4	6	4	4	1	6	5	6		1		2		2													30	36
3	9	6	6	2	2	5	11	4	5	4	8	1	2	2			3	1	1		1		1							31	55
1	4	7	7	6	3	4	4	3	5	6	4	4	6	1	8	1	5		1		1		1						1	37	61
4	1	1	6	2	5	2	2	3	4	5	6	2	2	3	11	2	1		3		2		2							26	63
	2	6	7	2	7	6	3	2	2	6	9	3	5	3	1		4		5		2		2						1	33	66
1	5	1	4	3	4	4	11	3	7	5	10	3	2	3	6		1		3		1		2		2		2			25	59
1	1	2	6	2	6	4	4	6	4	6	10	2	14	2	11	2	12	1	3	1	2		2		1		1			29	78
1		2	1	5	5	6	1	3	6	9	12	5	9	5	8	1	3	2	11		1		4		2		4			39	71
		2	5	2	5	7	9	3	5	10	8	4	9	3	6	3	3	1	8	1	6		9		2		4			36	80
	3	3	3		4	6	8		6	7	15	1	8	5	10	1	6	1	5	2	4	1	8		4	1	5			28	89
	1		6	3	3	1	7	1	6	5	11	5	10	1	11		8	1	4	1	3	1	6		2	1	3			21	81
						5	1	9	5	5	7	8	11	6	8	1	5		6		6	2	6		1		6			30	77
							3	5	1	5	4	17	1	6	1	15	2	5	1	11	2	2	2	4		2		4			17	72
				1	1	2	3	2	5	7	5	3	1		6	3	7	1	6	1	5	1	6		3	1	3			22	61
				1		2	4		8	3	8	1	7	1	5		5	3	8	1		1	4	1	1	1	5			15	55
				1			3	2	1		9	4	7		14	3	4	4	7	1	6	1	5	1	1	1	4			18	59
						1	3	1	3	3	9	2	7	4	2	2	3	3	9	1	5	2	2	1	1	1	6			21	50
							2		2	2	1	4	6	2	6	2	3	1		4	2	1	2	2	2	1	3			19	29
								1			2	4	1	3	9	3	1	2	3	2	4	2	3	1	3	1	2			19	28
										1	1	5	1	8	10	5	3	3	5	6	1	3	2	1	2	2	2	6		29	30
	1							1	3		2	1	2	1	4	2	5	2	4	1	1	1	1	1	2	1	6			26	22
											1	3	2	1	4	3	3	1	2	2	1	1	2	1	1	1	1			14	17
			1								1	2		1	1	2	2	1		1	3	1	1	1	1	1	2			12	17
						1			1	1		1		5	2	1	1	2		1		4	6	3	1	2	3			21	14
							2					1	3	1	6		1	2		2		2	3	2		2	1			19	12
												1	1				1	2		1		3	1	2	1	2	1			11	5
													2	1	2	2		2		2		2	1	1		1				12	6
									1			1		1		1		1		2		3	1	1			1				10	3
61	96	112	128	80	107	97	143	68	118	123	185	80	133	84	158	55	97	52	109	33	61	40	89	25	36	28	77				
142	144	145	146	147	148	150	153	152	155	155	157	150	157	164	159	164	159	167	160	106	160	170	160	170	161	170	162				

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In order to accommodate Table 1 to the size of the printed page, it has been necessary to take out the following measurements from that table:

At 106 centimeters—girls, one 6½ years old; at 108 centimeters—girls, one 6 years old, one 6½ years, and boys, one 6 years old; at 109 centimeters—girls, two 6 years old, and boys, one 6 years old, two 7 years; at 110 centimeters—girls, one 6 years old, five 6½ years, one 7 years, two 7½ years, and boys, two 6 years old, and two 6½ years; at 111 centimeters—girls, two 6 years old, two 6½ years, and boys, one 6 years old, two 7½ years; at 112 centimeters—girls, eleven 6 years old, one 7 years, one 8 years, and boys, three 6 years old, one 7 years; at 113 centimeters—girls, three 6 years old, one 6½ years, one 8 years, and boys, two 6 years old, two 6½ years, one 7 years, two 7½ years, two 8 years; at 114 centimeters—girls, six 6 years old, one 6½ years, three 7½ years, and boys, one 6 years old, two 6½ years, four 7 years, one 7½ years, one 8½ years; at 176 centimeters—girls, one 15½ years old, one 16 years, and boys, one 14 years old, one 15½ years, three 16 years, one 16½ years, two 17 years, one 17½ years, one 18 years; at 177 centimeters—girls, one 17 years old, one 17½ years, one 18 years, and boys, one 16 years old, one 16½ years, one 17 years, one 17½ years, one 18 years; at 178 centimeters—girls, one 14½ years old, and boys, one 15 years old, one 15½ years, one 16 years, two 17 years, two 18 years; at 179 centimeters—boys, one 14½ years old, one 15½ years, two 17 years, one 17½ years, two 18 years; at 180 centimeters—boys, one 15 years old, one 17½ years; at 181 centimeters—boys, one 15½ years old, one 18 years; at 182 centimeters—boys, one 14½ years old, one 16 years; at 183 centimeters—boys, one 14½ years old, one 16½ years; at 184 centimeters—boys, one 16 years old; at 186 centimeters—boys, one 14½ years old.

The extremes in growth to be noted are marked, in that the tallest boy at 15½ years of age is 49 centimeters taller than the shortest; the tallest girl at 13½ years of age is 39 centimeters taller than the shortest. The widest range of differences is during the adolescent age, where there is a slight tendency toward bimodal distribution (i. e., two groups of cases appear with central tendencies for each); this appears for boys at 13 and for girls at 12½. The boys are taller than the girls from 6 to 11 years of age; the girls then become taller and remain so until 14½, when the boys are taller. This is graphically shown by the solid and the leader lines drawn transversely in the charts. Those below these lines are tall individuals and those above are short individuals.

4. WEIGHT AND AGE DISTRIBUTION.

This distribution, like that of height, was taken for the University of Chicago schools and the Francis W. Parker School, in order to find a working norm. It is to be noted there is a much wider range of cases here than in the height distribution, and a more irregular surface of frequency for each age. The widest range of differences is found during the adolescent age, and in particular at the age of 15 years, where the heaviest boy weighs 110 pounds more than the lightest, and the heaviest girl 104 pounds more than the lightest. The boys are heavier than the girls from 6 to 12½ years of age; the girls then become heavier and remain so until 16, after which the boys again are heavier. The norms, like those of height, are above the averages derived by other investigators who have used but one measurement for each individual.

The table is self-explanatory and is uniform in construction with that of height.

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The norms obtained in this table are, of course, least satisfactory for the lower and upper ages, where there are few cases. For several ages the same individual measurements occur, thus making the table approach what it would be if a homogeneous group were used for all ages from 6 to 18.

The weight table is uniform in construction with the height table, and the same individuals are used. Since the measurements here were taken in pounds, in place of kilograms, the distribution of pounds is retained for years and half years, and the kilogram equivalents are given for every 5 pounds, beginning with 35 pounds.

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TABLE 2.—*Weight*

[Number of individuals—Boys, 460; girls, 638; total, 1,098.

Weight.		Age in years.																					
		6		6½		7		7½		8		8½		9		9½		10		10½		11	
		B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.
Pounds.	*Kilos.*																						
35	15.876																						
36					1																		
37			3				1																
38					1																		
39		1	4		1																		
40	18.144	1	1		1	1			1		1												
41		1	1		1	2	1		1														
42		1	5		1	3	2		1						1								
43		2	4	2	1	2	4	2	1		1												
44		2	4	3	4	1	7		4	1	1		1										
45	20.412	6	3	2	2	2	4		3	2	2												
46		1	2	1	2	3	3	3	3		4	1	3		2		1						
47		1	3	1	3	2	2	1	6	2	2	2		1					2				
48		1	1	1	4	1	3	3	4	2	7		2	2	1			1					
49		1	4	1	2	1	1	1	2	2	5		2	1	1	1	4	1	2				
50	22.680	2	1	2	3	4	4	2	3	3	5		5	1	2	1	3			1	1		
51		2	1	2	2	3	2	1	5	2	9	2	4	3	5	6		1		1			
52		1		3		1	4	1	4	2	6	1	5	2	6		3	2		1	2		
53		4		2	3	1	4	2	2	1	3	3	5	1	2	3	5		1	1	3	1	
54		2		1		1	3	3	1	2	2	1	2	3	2	4	4	1	4		1	1	
55	24.948	1				2	2	2	3	1	4	2	2	1	6	4	11	1	5		2	4	1
56		1		2		1		3	1	1	3	6	4	1	5	2	4	3	1	1	1	1	
57						2		2	2	3	5	2	4	8	6	3	4	4	1	1	5	1	1
58				1		2		3	1	3	2	3	2	2	8	2	5	3	1	3	2	2	3
59		1		1			1	3	1	1	2	1	3	4	5	2	8	1	4	2	4	2	5
60	27.252			2			1	1	1	1	2	1	4	3	2	2	3	1	2	4	6	1	4
61				1		1		1	1	1	1	2	1	2	4		4	2	7	1	4	8	8
62							1	1		2	1	1	3	3	4	5	3	2	4	2	1	2	6
63							1			1	2	1	1	2	3	2	2	3	1	2	3	1	5
64						1	1	1		2		2	2	1	9	5	3	4	6	2	2	3	3
65	29.484							2		1	2	2	1	2	1	4	4	1	1	4	2	4	3
66								1		3		4	2	5	3	4	3	2	5	2	2	2	5
67								1		1		1	1		1	4	3	3	1	1	1	3	3
68							1			1		2	1	1	1	2	3	2	6	4	5	1	4
69				1		1				1		1			1	6	2	3	3	4	3	2	5
70	31.752									1		3	1		2	3	2	2	2	1	4	3	3
71								1		2		2	3	1	1	1	6	4		1	3	4	3
72								1		1				1		1	1	5	4	3	1	2	4
73					1											1			1	1	1	4	1
74														1			1	4	2	1	5	6	5
75	34.020									1					1		1	5	2	4	2	1	5
76			1									1					1		1	2	2	6	3
77																		2	2	1	3	2	3
78												1				1			2	2	1	3	1
79								1							2		3		1	3		1	
80	36.287																1	1	1	2	3	2	3
81														1					3	1		1	2
82															1			1		2	1	3	3
83														1				1	1	1		2	1
84												1				1		2			1	2	1
85	38.562											1					2		1		2	2	1
86																			1			2	1
87																						3	2
88																					1		
89																		1	1	1		1	
90	40.823																			1		1	
91																							
92																							
93																		1					2
94																							1
95	43.091							1															2
96																					1		1
97																					1		
98																							1
99																							

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and age distribution.

Number of measurements—Boys, 1,475; girls, 2,108; total, 3,565.]

Age in years.																										B.	G.
11½		12		12½		13		13½		14		14½		15		15½		16		16½		17		17½		18			
B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*1*
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*4*
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*1*
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	*5*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	*4*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	*4*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	*10*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	*11*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	*21*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12	*14*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	*20*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	*18*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	*22*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	*23*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16	*27*		
...	*2*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22	*31*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14	*30*		
...	*1*	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20	*29*		
1	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20	*20*		
...	*1*	...	...	...	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18	*39*		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22	*19*		
1	*2*	...	...	...	...	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	28	*33*		
...	*2*	...	*2*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24	*28*		
2	*3*	...	*4*	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	*40*		
...	*1*	*1*	*1*	*1*	...	...	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18	*28*		
2	*1*	...	*2*	...	...	...	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	*28*		
2	*6*	*4*	*4*	*2*	...	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27	*32*		
3	*1*	*1*	*3*	*2*	*3*	*2*	*2*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20	*27*		
8	*5*	...	*1*	...	...	...	*3*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29	*41*		
2	*4*	*1*	*3*	*2*	*1*	...	...	*1*	...	*1*	...	...	...	...	...	...	...	...	*2*	...	...	...	...	...	...	27	*30*		
...	*3*	*6*	*2*	*1*	*2*	...	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30	*28*		
3	*5*	*2*	*4*	*1*	...	...	...	*1*	...	...	...	...	...	...	...	...	...	...	*1*	...	...	...	...	...	...	21	*20*		
1	*2*	*2*	*2*	*4*	*5*	*1*	*3*	*1*	...	...	*2*	...	*4*	...	...	...	...	...	...	...	...	...	...	...	...	23	*39*		
1	*4*	*1*	*2*	*6*	*1*	*3*	*1*	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30	*18*		
2	*1*	*2*	*4*	*4*	*3*	*1*	*2*	...	...	...	...	...	...	*1*	...	...	...	...	...	...	...	...	...	...	...	23	*24*		
2	*5*	*4*	*2*	*1*	*2*	...	...	*1*	*2*	*1*	*2*	...	...	...	...	...	...	*1*	...	...	...	...	...	...	...	26	*28*		
...	*2*	*3*	*5*	*4*	*5*	*2*	...	*1*	*2*	*1*	*1*	...	...	...	...	...	...	...	...	*1*	...	...	...	...	...	26	*25*		
3	*4*	*3*	*5*	*5*	*2*	*4*	*1*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	*19*		
1	*1*	*6*	*4*	*1*	*1*	*2*	*1*	*3*	*2*	*2*	*3*	*1*	*1*	...	...	...	...	...	...	...	...	...	...	...	...	28	*23*		
3	*1*	*4*	*2*	*1*	*3*	*1*	*4*	*3*	*1*	*1*	*2*	...	...	...	*1*	...	...	...	...	...	...	...	...	...	...	24	*22*		
3	*1*	*8*	*1*	*1*	*2*	*1*	*2*	*3*	*1*	*1*	...	...	...	...	...	*1*	...	...	...	...	...	...	...	...	...	27	*15*		
1	*2*	*6*	*3*	*3*	*3*	*4*	*3*	...	...	*2*	...	...	...	*1*	...	...	...	...	...	...	...	...	...	...	...	22	*18*		
1	*2*	*4*	*1*	*2*	*4*	*2*	*1*	*3*	*3*	*2*	*1*	*1*	*1*	...	...	...	...	...	...	...	...	...	...	...	...	22	*17*		
2	*4*	*2*	*3*	*3*	*3*	*4*	*4*	*3*	*1*	*2*	*1*	*3*	*1*	*1*	...	...	*1*	*2*	...	...	...	...	...	...	...	27	*25*		
3	*4*	*2*	*3*	*4*	*3*	*3*	*1*	*1*	*1*	*1*	*2*	...	...	...	...	...	*1*	...	...	...	...	...	...	...	...	21	*22*		
1	*1*	*5*	*1*	*1*	*1*	*3*	*3*	*3*	...	*2*	*1*	*1*	*3*	...	...	...	...	...	...	...	...	...	...	...	...	19	*15*		
3	*2*	*2*	*2*	*4*	*2*	*3*	*2*	...	*3*	*1*	...	*1*	*2*	*1*	...	...	...	...	*1*	...	...	...	*1*	...	*1*	21	*21*		
1	*1*	*1*	*2*	*1*	*1*	*1*	*2*	*4*	*1*	*1*	*4*	...	*1*	*2*	...	...	...	...	*1*	...	...	...	...	...	...	16	*15*		
1	*2*	*1*	*2*	*3*	*2*	*1*	*4*	*5*	*3*	*2*	*3*	...	...	*1*	*2*	...	...	...	*1*	...	...	...	*1*	...	...	20	*22*		
3	*2*	*4*	*3*	*2*	*3*	*1*	*1*	*3*	*2*	*4*	*3*	...	*2*	*1*	*3*	...	...	...	...	...	...	...	...	...	...	21	*25*		
2	*1*	*2*	*4*	*2*	*2*	*4*	*2*	...	*1*	*2*	*3*	...	*1*	*2*	*2*	...	*1*	*1*	...	...	...	...	...	...	...	17	*19*		
...	*3*	*6*	*2*	*4*	*1*	*2*	*3*	*4*	*2*	*3*	*2*	*3*	*1*	...	...	*1*	...	...	...	...	...	...	...	...	...	26	*16*		
...	*4*	*3*	*2*	*2*	*6*	*6*	*1*	*2*	*2*	*6*	*2*	...	*2*	*1*	*1*	...	*1*	*1*	...	...	*2*	...	*1*	...	*1*	21	*27*		
1	*1*	*2*	*2*	*1*	*6*	*1*	*2*	*1*	*1*	*1*	*2*	*1*	*2*	*2*	*1*	*1*	*2*	*1*	...	...	...	...	...	...	...	15	*19*		
1	*2*	...	*2*	*1*	*2*	*3*	*2*	*4*	*2*	*4*	*8*	*2*	*2*	...	*2*	...	...	...	*1*	...	...	...	*1*	*1*	...	18	*24*		
...	*1*	*2*	*2*	*1*	*1*	*2*	*2*	*1*	*2*	*3*	*2*	*2*	*2*	*4*	...	...	...	...	*1*	...	...	...	...	...	...	13	*17*		
...	*2*	...	*2*	*2*	*1*	*2*	*1*	*1*	*2*	*4*	*4*	*1*	*1*	*1*	*3*	*2*	...	...	...	...	...	...	*1*	...	*1*	13	*18*		
...	*2*	*2*	*1*	*1*	*2*	*1*	*4*	*4*	*2*	*3*	*1*	*2*	*1*	*1*	*4*	...	...	...	...	...	...	...	...	...	*1*	15	*20*		
...	*1*	*1*	...	*1*	*1*	*1*	*2*	*1*	*2*	*2*	*1*	*1*	*2*	*2*	*2*	*1*	*2*	...	*2*	*1*	...	...	*2*	...	...	10	*18*		
...	*4*	*1*	*1*	...	*2*	*2*	*2*	*1*	*1*	*3*	*2*	*1*	*1*	*1*	*4*	...	*1*	*1*	...	...	...	...	*1*	...	*1*	11	*22*		
...	...	*2*	*1*	*3*	*1*	*3*	*5*	*1*	*4*	*4*	*3*	*2*	*3*	*1*	*1*	*1*	*4*	*1*	*4*	...	*2*	*1*	*1*	...	...	19	*31*		
...	...	*1*	...	*1*	*2*	...	*2*	*1*	*1*	*2*	*3*	*1*	*4*	*1*	*1*	*1*	...	*1*	*2*	*1*	*1*	...	*1*	...	*1*	10	*24*		
...	*1*	*1*	...	...	*2*	*1*	*2*	*3*	*1*	*1*	*3*	*1*	*1*	*1*	*3*	*1*	...	*1*	...	*1*	...	...	*2*	...	...	11	*15*		
2	*1*	...	*1*	*2*	*1*	*1*	*4*	*1*	*2*	*6*	*3*	*3*	*4*	*2*	*2*	*1*	*2*	*1*	*1*	...	...	*1*	...	*2*	...	20	*24*		

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TABLE 2.—*Weight and age*

Weight.		Age in years.																					
		6		6½		7		7½		8		8½		9		9½		10		10½		11	
		B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.
Pounds.	*Kilos.*																						
100	45.359																		1				
101																							
102																	1						
103																							
104																							
105	47.627																						
106																							
107																							
108																							
109																		1					
110	49.895																						
111																							
112																							
113																							
114																							
115	52.167																						
116																							
117																1							
118																					1		
119																							
120	54.431																						
121																							
122																							
123																							
124																							
125	56.699																						
126																							
127																							
128																							
129																							
130	58.967																						
131																							
132																							
133																							
134																					1		
135	60.235																						
136																							
Number of cases		32	38	29	33	38	53	44	51	47	72	50	64	54	89	71	100	71	85	63	82	20	109
Median weight		47	44	51	47	50	48	56	49	57	51	60	56	59	58	63	59	67	65	69	66	71	67

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distribution—Continued.

Age in years.																												B.	G.
11½		12		12½		13		13½		14		14½		15		15½		16		16½		17		17½		18			
B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.		
...	*1*	...	*1*	...	*2*	1	4	...	*2*	3	4	2	2	2	1	1	2	1	3	...	...	1	1	...	...	...	2	11	*26*
...	...	...	...	...	...	2	7	...	*2*	2	7	2	2	1	1	1	3	...	2	...	...	...	...	...	1	...	1	8	*26*
...	...	2	...	1	3	1	1	...	4	4	4	3	1	2	5	1	4	2	2	1	1	...	2	...	...	...	...	17	*28*
...	...	1	1	...	1	...	...	...	1	2	6	6	2	1	3	3	4	3	3	1	4	...	...	...	...	1	1	18	*26*
...	...	...	2	...	1	2	2	...	3	1	4	2	3	2	2	1	1	2	5	1	2	1	...	...	...	...	2	12	*27*
...	...	...	...	...	...	1	...	...	1	6	5	2	4	3	2	1	1	1	4	2	3	...	2	...	...	...	...	16	*22*
...	1	...	...	1	...	...	3	1	3	2	2	1	2	2	4	2	5	1	4	1	2	...	...	...	...	...	1	11	*27*
...	...	...	...	...	...	...	...	1	3	...	2	2	1	3	3	1	1	1	5	1	2	1	2	...	1	...	2	10	*21*
...	1	...	1	...	1	1	...	1	...	5	2	2	1	3	3	1	1	2	3	1	2	1	2	...	...	...	1	17	*18*
...	...	...	...	...	...	...	5	1	1	2	2	1	5	1	2	1	2	1	2	2	1	...	...	...	...	...	1	10	*21*
...	...	...	...	...	...	...	5	...	...	*2*	5	4	...	4	3	1	7	1	1	...	6	...	2	...	2	...	5	12	*37*
...	...	...	...	...	...	...	2	...	1	1	6	1	2	4	3	1	3	1	3	1	...	1	3	...	...	...	1	10	*24*
...	...	...	...	...	...	1	1	1	1	1	6	1	...	1	5	1	6	2	2	...	1	...	2	...	...	1	5	9	*29*
...	...	...	...	...	...	1	2	2	...	...	3	1	1	2	7	1	1	2	1	...	1	1	3	2	1	...	1	12	*21*
...	...	...	...	...	...	2	1	1	...	1	1	1	...	1	5	4	1	1	3	1	2	...	2	...	2	1	2	13	*19*
...	...	...	...	...	1	...	3	...	1	...	1	...	1	4	5	1	...	...	2	1	2	1	3	...	1	1	3	8	*23*
...	...	...	2	...	...	...	...	1	1	3	4	...	5	2	8	...	1	...	2	...	...	1	1	...	2	1	3	8	*29*
...	1	1	...	1	1	1	1	...	1	3	...	1	...	5	...	7	3	3	...	4	1	...	...	1	1	1	10	*28*
...	...	...	...	...	...	1	1	...	...	4	1	2	1	1	...	...	...	2	...	1	...	4	...	2	1	2	4	*20*
...	...	...	...	1	...	3	1	1	...	2	...	2	...	2	...	2	2	1	...	1	...	...	1	1	...	3	4	*19*
...	...	...	1	...	...	1	...	4	...	4	1	1	1	4	...	1	...	...	1	3	...	2	...	2	...	1	3	*24*
...	...	...	...	1	...	...	...	...	...	...	1	2	4	1	...	2	1	1	...	1	...	...	1	1	...	2	7	*11*
...	...	...	...	...	...	...	...	1	...	2	...	1	...	1	...	1	...	1	2	...	1	4	...	1	...	1	4	*13*
...	...	...	...	...	...	3	...	...	...	1	2	...	1	1	5	2	1	1	2	2	1	...	2	1	...	1	8	*19*
...	...	...	...	...	...	1	1	...	1	2	1	1	2	1	2	...	1	...	1	...	1	1	2	...	1	1	2	7	*15*
...	...	...	...	...	...	...	1	...	...	...	2	...	...	...	2	1	4	4	3	2	...	3	...	...	2	...	3	10	*17*
...	...	...	...	...	...	1	1	...	1	2	1	2	2	...	...	1	1	1	...	...	...	...	1	2	...	1	...	10	*8*
...	...	...	...	...	...	...	...	1	...	2	5	...	...	3	1	1	2	...	...	...	...	...	1	...	...	...	1	6	*11*
...	...	...	...	...	...	...	...	...	...	...	1	2	1	1	2	...	3	1	1	3	1	3	1	...	...	...	...	10	*10*
...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	2	1	1	1	...	...	...	1	1	1	1	...	...	5	*6*
...	...	...	...	...	...	...	1	...	...	...	1	...	3	2	2	1	1	...	2	...	...	1	1	1	...	...	3	5	*14*
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	...	2	2	...	...	1	...	1	4	*6*
...	...	...	1	...	1	...	...	...	...	...	...	1	...	1	2	...	...	...	1	...	1	1	1	...	...	...	2	3	*9*
...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	1	3	...	1	1	...	...	...	...	...	...	...	...	6	*3*
...	...	...	1	...	...	...	...	...	...	...	1	...	1	1	...	...	...	1	1	...	1	...	...	...	...	...	2	4	*7*
...	...	...	...	...	...	...	...	...	...	2	...	1	...	...	...	...	...	...	...	1	...	1	...	1	...	...	...	3	*4*
...	...	...	...	...	...	1	1	3	...	2	5	6	5	7	5	3	12	6	11	3	8	3	5	7	3	9	5	50	*61*
62	*105*	103	*104*	82	*95*	87	*186*	79	*78*	116	*168*	75	*99*	83	*148*	45	*97*	57	*98*	33	*59*	28	*61*	17	*35*	19	*64*	....	....
73	*75*	77	*76*	78	*85*	86	*95*	87	*95*	96	*105*	103	*104*	108	112	109	*111*	112	*109*	115	*115*	125	*115*	128	*117*	131	*116*	....	....

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5. MEDIANS OF HEIGHT AND WEIGHT.

This table represents the median heights and median weights for boys and girls, for six-month intervals from 6 to 18 years of age, as derived from a study of the distribution of the two schools.

TABLE 3.—*Medians of height and weight.*

Age.	Median height.				Number of cases.		Median weight.				Number of cases.	
	Boys.		Girls.		Boys.	Girls.	Boys.		Girls.		Boys.	Girls.
	Centimeters.	*Inches.*	*Centimeters.*	*Inches.*			*Kilograms.*	*Pounds.*	*Kilograms.*	*Pounds.*		
6	116	45.7	114	45.1	28	41	21.3	47.0	19.6	43.6	32	38
6½	119	46.9	117	46.2	29	50	23.1	51.0	21.2	46.8	29	33
7	121	47.5	121	47.6	43	58	22.5	49.6	21.8	48.2	38	53
7½	125	49.2	123	48.4	47	54	25.5	56.2	22.2	49.0	43	51
8	128	50.3	125	49.2	52	87	25.9	57.2	23.2	51.3	47	72
8½	131	51.5	126	49.7	48	71	27.2	60.0	25.2	55.6	50	64
9	131	51.6	130	51.1	66	89	26.6	58.6	26.4	58.1	54	88
9½	134	52.7	131	51.5	78	101	28.4	62.5	26.9	59.3	71	100
10	136	53.5	135	53.0	78	93	30.5	67.2	29.7	65.5	71	83
10½	139	54.7	137	54.2	76	85	31.2	68.8	29.8	65.8	63	82
11	139	54.7	141	51.1	103	110	32.3	71.1	30.2	66.8	90	109
11½	142	55.9	144	56.6	61	96	33.0	72.7	32.9	72.5	62	105
12	145	57.1	146	57.4	112	128	34.8	76.8	34.2	75.3	103	104
12½	147	57.9	148	58.1	80	107	35.2	77.8	37.7	83.0	82	98
13	150	59.0	153	60.2	97	143	39.0	86.0	43.0	94.8	87	126
13½	152	59.8	155	60.9	68	115	39.5	87.0	43.1	95.0	79	78
14	155	60.9	157	61.8	123	185	43.6	96.1	46.5	102.6	116	165
14½	159	62.6	157	62.0	80	132	46.4	102.5	47.0	103.5	75	99
15	164	64.5	159	62.6	84	158	48.2	107.5	50.8	112.0	82	142
15½	164	64.7	159	62.6	55	97	49.1	108.5	50.2	111.2	75	97
16	167	65.7	160	62.9	52	109	50.8	112.0	49.4	108.8	57	98
16½	166	65.5	160	63.0	33	61	51.7	114.5	51.0	112.5	33	59
17	170	66.5	160	62.9	41	89	56.6	124.7	51.4	113.2	28	61
17½	170	66.5	161	63.4	25	36	58.2	128.5	52.8	116.5	17	33
18	170	66.5	162	63.8	28	77	59.1	130.5	51.4	115.7	19	64
Total number of cases					1,587	2,372					1,464	2,101
Total number individuals					501	706					460	638

6. INDIVIDUAL INCREMENTS IN HEIGHT, WEIGHT, AND LUNG CAPACITY.

The writer has aimed, as far as space will permit, to give the original data with results in such form that further comparisons and correlations may be worked out. Tables 4, 5, and 13–22 give the initial measurements in height, weight, and lung capacity, with the yearly increments and per cents of gain and loss for 50 boys and 50 girls from 7 to 13 years of age, and for 50 boys and 50 girls from 12 to 17 years of age. The individuals are arranged in an ascending scale in accordance with the initial height at 7 and 12 years of age. Many individuals with the longest series of measurements have been omitted on account of the records having been made before or after the interims included in these tables. All the individuals with long records, however, are represented in the charts of individual curves

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which follow the tables. The individuals represented in both tables may be found by means of the cross references given in the explanation of the curve charts.

In the tables the serial numerals at the left refer to the respective individuals. The heights are in centimeters, the weights in pounds, the lung capacities in cubic inches; the respective increments are of the same units of measurement. The per cent of gain is the proportion of the increment to the previous measurement. The averages and average deviations of increments and the averages of the per cents in the middle of the table are for the first 25 shorter individuals and those at the bottom of the table are for the 25 taller individuals. The average height, weight, and lung capacity for each year and half year at the bottom of the tables are for the 50 in each group and offer a means of comparison between the medians or norms found in the distribution tables where there were more individuals, but fewer repeated measurements. No measurements here, as indicated in the discussion on the method of procedure, can be more than three months from the exact chronological age.

These tables are given in order that the individual differences may be closely noted, that the differences between gain in absolute increment and gain in per cent may be compared, and that these data may be accessible for future comparisons in this study and for those who wish to make further correlations.

The boys and girls are from the three schools and represent a fairly normal distribution, except that the Francis W. Parker boys are slightly inferior to the others in height and the Francis W. Parker girls, who were measured more frequently than those of the other schools, show more individual fluctuations.

HEIGHT.

From the years 6 to 13½, the yearly increment varies from 1 to 8 or 9½ centimeters. At the age of 12 there is a surprising jump in the increase, which reaches as high as 12 centimeters; the rapid increase continues up to 17 years of age. The increase from 6 to about 7½ has no uniformity, and seems to depend on the individual. From the years 8 to 12 the usual increase is from 7 to 9 centimeters. Here, too, is the greatest uniformity of increase, that is more boys increase the same number of centimeters than at any other time. In some sporadic cases the increment is as much as 10 centimeters. From 13 to 17 the increment is larger.

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WEIGHT.

From the years 6 to 7½ there is little uniformity in weight increment, for it varies all the way from 2 to 15 kilograms. At 7½ the increase begins to be a little more uniform, and a rough average can be taken. This is about 4 kilograms. In two cases there was a loss, of 2 and of 5 kilograms, respectively; but loss is rare. The average stays almost the same up to 13 years. But some individuals increased from 14 to 22 kilograms. These cases, were, however, sporadic. The greatest uniformity occurs from 9½ to 10½ and again from 14 to 15½. The least uniformity of increase is from 12 to 13. The average increment in the ages between 11 and 17 is from 6 to 10 kilograms. The greatest increase, 18 to 23 kilograms, is found to occur between the ages of 12 and 16½. In one case between 16 and 17 the increase was remarkable, 35 kilograms. There were four cases of loss varying from 1 to 4 kilograms. The increase from 11 to 17 is so irregular as to make it almost impossible to strike an average.

LUNG CAPACITY.

As a rule, the greatest relative gains in breathing capacity occur between the first and the second measurement, which is probably due to the fact that the child has not learned how to use the spirometer, which involves a voluntary reaction as well as a physical measurement. The cases where children lose in breathing capacity are, as a rule, near the first measurements or are caused by colds at the time of measurement.

There is less uniformity in lung capacity than there is in weight. For example, between the ages of 7½ and 8½ the increment varies from a loss of 16 cubic centimeters to an increase of 49. Before the age of 7½ there is absolutely no uniformity; after this the average may be roughly estimated at 8 to 16 cubic centimeters increase. In the ages from 10 to 13 there is a great fluctuation; all the way from 2 to 22 cubic centimeters, and 2 cases of loss. Uniformity is almost lost from 11 to 17. The ages of greatest uniformity are from 13 to 15.

To give a few examples of the extreme fluctuation, and to give an idea of the difficulty in striking even a rough average, the following cases may be cited: From 11 to 12 years of age the lung capacity varies from a loss of 2 to a gain of 46 cubic centimeters; from 13 to 14 it varies from a loss of 16 to a gain of 56 cubic centimeters; from 14 to 15, from a gain of 2 to a gain of 66 cubic centimeters; from 16 to 17, from a loss of 2 to a gain of 56 cubic centimeters.

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It is to be noted in reading these tables that the initial height, weight, and lung capacity are given in the first column after the individual's number. The yearly increment or gain in growth is given just after the initial measurement and the gain per cent just after the increment. For example, number 1 was 112 centimeters tall at 7 years of age and 116.8 centimeters at 8 years of age. This girl grew 4.8 centimeters, or 4.3 per cent, during the year. At 9 years of age this girl was 119.6 centimeters tall, and she had, therefore, gained 2.8 centimeters, or 2.4 per cent.

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TABLE 4.—*Increments of growth in height for a group of 50*

No.	7 years.			7½ years.			8 years.			8½ years.			9 years.			9½ years.			10 years.		
	Height.	Increment, 6–7 years.	Per cent gain.	Height.	Increment, 6½–7½ years.	Per cent gain.	Height.	Increment, 7–8 years.	Per cent gain.	Height.	Increment, 7½–8½ years.	Per cent gain.	Height.	Increment, 8–9 years.	Per cent gain.	Height.	Increment, 8½–9½ years.	Per cent gain.	Height.	Increment, 9–10 years.	Per cent gain.
	Cm.	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*	
1	112.0	....	....	....	....	....	116.8	4.8	4.3	....	....	....	119.6	2.8	2.4	121.3	....	....	124.6	5.0	4.1
2	112.8	....	....	....	....	....	118.8	6.0	5.3	....	....	....	123.6	4.8	4.0	....	....	....	129.6	6.0	4.9
3	113.0	....	....	....	....	....	118.6	5.6	5.0	....	....	....	123.2	4.6	3.9	....	....	....	126.0	2.8	2.2
4	....	....	....	113.1	....	....	....	....	....	119.0	5.9	5.2	122.6	....	....	....	....	....	127.2	4.6	3.7
5	....	....	....	113.7	....	....	....	....	....	....	....	....	119.8	....	....	123.4	....	....	....	....	....
6	114.3	4.9	4.5	116.6	5.6	5.1	....	....	....	121.9	5.3	4.5	123.3	....	....	125.6	3.7	3.1	....	....	....
7	....	....	....	114.8	....	....	....	....	....	119.6	4.8	4.2	....	....	....	122.4	2.8	2.3	....	....	....
8	....	....	....	116.0	....	....	....	....	....	121.0	5.0	4.3	....	....	....	126.6	5.6	4.6	....	....	....
9	....	....	....	117.2	....	....	....	....	....	123.4	6.2	5.2	....	....	....	129.0	5.6	4.5	....	....	....
10	116.0	....	....	....	....	....	120.0	4.0	3.4	....	....	....	125.2	5.2	4.3	....	....	....	130.0	4.8	3.6
11	....	....	....	120.0	....	....	....	....	....	125.6	5.6	4.7	....	....	....	131.0	5.4	4.3	....	....	....
12	117.4	....	....	123.0	6.2	5.6	....	....	....	128.0	5.0	4.1	....	....	....	131.8	3.8	2.9	....	....	....
13	....	....	....	117.7	....	....	120.2	....	....	122.1	4.4	3.7	126.0	5.8	4.8	128.0	5.9	4.9	....	....	....
14	117.9	....	....	122.1	....	....	123.6	5.7	4.8	....	....	....	129.3	5.7	4.6	....	....	....	....	....	....
15	....	....	....	118.4	4.1	3.6	121.2	....	....	123.6	5.2	4.4	126.5	5.3	4.4	128.6	5.0	4.1	133.2	6.7	5.3
16	118.4	6.4	5.7	....	....	....	125.6	7.2	6.1	....	....	....	129.8	4.2	3.3	....	....	....	136.0	6.2	4.8
17	118.6	....	....	....	....	....	122.6	4.0	3.3	....	....	....	128.4	5.8	4.7	....	....	....	134.4	6.0	4.7
18	....	....	....	118.8	6.6	5.9	....	....	....	124.4	5.6	4.7	....	....	....	129.0	4.6	3.7	....	....	....
19	119.0	....	....	122.5	....	....	....	....	....	....	....	....	128.9	....	....	130.7	....	....	133.9	5.0	3.9
20	119.2	....	....	....	....	....	....	....	....	124.4	....	....	....	....	....	129.6	5.2	4.1	....	....	....
21	119.4	....	....	....	....	....	125.0	5.6	4.7	125.9	....	....	....	....	....	130.7	4.6	3.6	133.9	....	....
22	....	....	....	119.6	....	....	122.2	....	....	....	....	....	127.0	4.8	3.9	....	....	....	131.4	4.4	3.5
23	....	....	....	119.6	4.6	4.0	....	....	....	122.6	3.0	2.5	....	....	....	126.4	3.8	3.1	129.8	....	....
24	....	....	....	120.0	....	....	123.6	....	....	....	....	....	127.8	4.2	3.5	....	....	....	131.6	3.8	3.0
25	121.0	6.0	5.2	....	....	....	124.4	3.4	2.8	....	....	....	129.4	5.0	4.0	....	....	....	133.8	4.4	3.4
Av.	.....	5.8	5.1	.....	5.4	4.8	.....	5.1	4.4	.....	5.1	4.6	.....	4.9	3.9	.....	4.7	3.8	.....	5.0	3.9
Av. var.	.....	.6	....	.....	.9	....	.....	1.0	....	.....	.6	....	.....	.6	....	.....	.7	....	.....	.8	....
26	116.2	5.8	5.3	....	....	....	122.4	6.2	5.3	....	....	....	127.0	4.6	3.8	....	....	....	133.0	6.0	4.7
27	....	....	....	118.3	....	....	120.3	....	....	123.9	5.6	4.7	126.7	6.4	5.3	129.2	5.3	4.3	....	....	....
28	120.5	....	....	123.5	....	....	126.3	5.8	4.8	....	....	....	128.9	2.6	2.1	131.4	....	....	134.2	5.2	4.1
29	....	....	....	121.0	....	....	....	....	....	125.2	4.2	3.5	....	....	....	129.8	4.6	3.7	134.8	....	....
30	121.0	....	....	....	....	....	126.4	5.4	4.5	....	....	....	130.4	4.0	3.2	....	....	....	136.6	6.2	4.7
31	....	....	....	122.6	5.4	4.6	....	....	....	128.2	5.6	4.6	....	....	....	134.4	6.2	4.8	....	....	....
32	122.2	....	....	....	....	....	125.4	3.2	2.6	....	....	....	127.7	2.3	1.8	130.7	....	....	....	....	....
33	....	....	....	122.2	4.2	3.6	....	....	....	126.4	4.2	3.4	....	....	....	132.4	6.0	4.7	....	....	....
34	123.4	....	....	....	....	....	130.0	6.6	5.3	133.8	....	....	....	....	....	138.0	4.2	3.1	....	....	....
35	....	....	....	123.6	....	....	128.6	....	....	....	....	....	134.0	5.4	4.2	....	....	....	139.0	5.0	3.7
36	....	....	....	123.4	3.5	2.9	125.6	....	....	128.4	5.0	4.1	....	....	....	136.1	7.7	6.0	137.9	....	....
37	....	....	....	124.6	....	....	128.6	....	....	....	....	....	134.6	6.0	4.7	....	....	....	140.4	5.8	4.3
38	....	....	....	124.6	6.2	5.2	....	....	....	130.6	6.0	4.8	....	....	....	135.4	4.8	3.7	....	....	....
39	....	....	....	124.8	....	....	....	....	....	130.0	5.2	4.2	....	....	....	137.2	7.2	5.5	....	....	....
40	125.0	6.0	5.0	....	....	....	129.6	4.6	3.7	....	....	....	135.0	5.4	4.2	....	....	....	139.2	4.2	3.1
41	127.5	....	....	129.3	....	....	....	....	....	136.5	7.2	5.6	138.3	5.5	4.1	....	....	....	141.6	3.2	2.4
42	....	....	....	127.0	....	....	....	....	....	133.6	6.6	5.2	....	....	....	140.0	6.4	4.8	....	....	....
43	....	....	....	131.0	....	....	133.2	6.2	4.9	....	....	....	136.5	3.3	2.5	....	....	....	139.7	3.2	2.3
44	....	....	....	127.0	....	....	129.1	....	....	132.2	5.2	4.1	137.0	7.9	6.1	....	....	....	142.3	5.3	4.1
45	....	....	....	127.2	5.0	4.1	....	....	....	133.6	6.4	5.0	....	....	....	138.6	5.0	3.7	....	....	....
46	....	....	....	128.4	5.0	4.1	....	....	....	132.8	4.4	3.4	....	....	....	138.4	5.6	4.2	....	....	....
47	....	....	....	128.0	....	....	....	....	....	133.6	5.6	4.4	....	....	....	138.8	5.2	3.9	....	....	....
48	....	....	....	128.5	4.7	3.8	132.0	....	....	134.6	6.1	4.7	137.2	5.2	3.9	139.3	4.7	3.5	....	....	....
49	129.8	....	....	....	....	....	136.4	6.6	5.1	....	....	....	142.8	6.4	4.7	....	....	....	149.6	6.8	4.8
50	135.9	....	....	137.1	4.3	3.2	141.9	6.0	4.4	146.2	9.1	6.6	148.7	6.8	4.8	152.7	6.5	4.4	156.1	7.4	5.0
Av.	120	5.9	5.2	122.6	4.8	3.9	125.4	5.6	4.5	128.0	5.8	4.6	129.8	5.1	4.0	132.1	5.7	4.3	135.5	5.3	3.9
Av. var.	.....	.1	....	.....	.6	....	.....	.8	....	.....	.9	....	.....	1.3	....	.....	.9	....	.....	1.0	....

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girls from 7 to 13 years of age with consecutive measurements.

10½ years.			11 years.			11½ years.			12 years.			12½ years.			13 years.			No.
Height.	Increment, 9½–10½ years.	Per cent gain.	Height.	Increment, 10–11 years.	Per cent gain.	Height.	Increment, 10½–11½ years.	Per cent gain.	Height.	Increment, 11–12 years.	Per cent gain.	Height.	Increment, 11½–12½ years.	Per cent gain.	Height.	Increment, 12–13 years.	Per cent gain.	
Cm.	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		
126.3	5.0	4.1	.....	.....	....	130.7	4.4	3.5	135.2	.....	....	137.4	6.7	5.1	142.5	7.3	5.4	1.
.....	.....	....	134.0	4.4	3.4	.....	.....	....	142.6	8.6	6.4	.....	.....	....	148.2	5.6	3.9	2.
.....	.....	....	130.6	4.6	3.7	.....	.....	....	136.6	6.0	4.6	.....	.....	....	142.0	5.4	4.0	3.
.....	.....	....	130.7	3.5	2.8	.....	.....	....	134.6	3.9	3.0	.....	.....	....	140.6	6.0	4.5	4.
128.0	4.6	3.7	.....	.....	....	133.0	5.0	3.9	.....	.....	....	138.4	5.4	4.1	.....	.....	....	5.
129.0	3.4	2.7	.....	.....	....	.....	.....	....	139.5	.....	....	.....	.....	....	143.4	3.9	2.8	6.
126.0	3.6	2.9	.....	.....	....	130.6	4.6	3.7	.....	.....	....	.....	.....	....	.....	.....	....	7.
122.4	5.8	4.6	.....	.....	....	142.0	9.6	7.2	.....	.....	....	147.4	5.4	3.8	.....	.....	....	8.
134.6	5.6	4.3	.....	.....	....	138.6	4.0	3.0	.....	.....	....	143.6	5.0	3.6	.....	.....	....	9.
.....	.....	....	135.8	5.8	4.5	.....	.....	....	140.8	5.0	3.7	.....	.....	....	148.1	7.3	5.2	10.
135.8	4.8	3.7	.....	.....	....	140.0	4.2	3.1	.....	.....	....	144.2	4.2	3.0	.....	.....	....	11.
.....	.....	....	.....	.....	....	141.6	.....	....	.....	.....	....	.....	.....	....	.....	.....	....	12.
132.7	4.7	3.7	134.6	.....	....	136.0	3.3	2.5	140.3	5.7	4.2	143.4	7.4	5.4	148.6	8.3	5.9	13.
134.0	.....	....	138.8	.....	....	.....	.....	....	143.2	4.4	3.2	.....	.....	....	151.2	8.0	5.6	14.
.....	.....	....	137.4	4.2	3.2	139.7	.....	....	143.0	5.6	4.1	146.9	7.2	5.2	152.4	9.4	6.6	15.
.....	.....	....	141.4	6.4	4.7	.....	.....	....	147.0	5.6	4.0	.....	.....	....	153.6	6.6	4.5	16.
.....	.....	....	139.0	4.6	3.4	.....	.....	....	145.4	6.4	4.6	.....	.....	....	.....	.....	....	17.
133.6	4.6	3.6	.....	.....	....	139.6	6.0	4.5	.....	.....	....	145.0	5.4	3.9	.....	.....	....	18.
136.5	5.8	4.4	138.0	4.1	3.1	.....	.....	....	144.1	6.1	4.4	151.0	.....	....	152.4	8.3	5.8	19.
136.6	7.0	5.4	144.0	.....	....	.....	.....	....	151.2	7.2	5.0	.....	.....	....	154.4	3.2	2.1	20.
136.5	5.8	4.4	138.9	5.0	3.7	140.9	4.4	3.2	147.5	8.6	6.2	149.8	8.9	6.3	.....	.....	....	21.
.....	.....	....	135.4	4.0	3.0	.....	.....	....	141.6	6.2	4.6	.....	.....	....	148.8	7.2	5.1	22.
.....	.....	....	137.0	7.2	5.5	.....	.....	....	143.5	6.5	4.8	.....	.....	....	150.2	6.7	4.1	23.
.....	.....	....	136.6	5.0	3.8	.....	.....	....	142.0	5.4	4.0	.....	.....	....	148.0	6.0	4.2	24.
.....	.....	....	138.8	5.0	3.7	141.6	.....	....	144.6	5.8	4.2	.....	.....	....	150.4	5.8	4.0	25.
.....	5.1	4.0	.....	5.0	3.7	.....	5.1	3.9	.....	6.1	4.4	.....	6.2	4.5	.....	6.6	4.6	Av.
.....	.8	....	.....	.8	....	.....	1.2	....	.....	.9	....	.....	1.2	....	.....	1.2	....	Av. var.
.....	.....	....	138.8	5.8	4.4	.....	.....	....	147.2	8.4	6.1	.....	.....	....	153.2	6.0	4.1	26.
134.2	5.0	3.9	136.2	.....	....	.....	.....	....	.....	.....	....	142.3	.....	....	144.4	.....	....	27.
137.0	5.6	4.3	138.4	4.2	3.1	.....	.....	....	147.3	8.9	6.4	151.7	.....	....	154.9	6.6	4.5	28.
.....	.....	....	142.0	7.2	5.3	.....	.....	....	148.8	6.8	4.9	.....	.....	....	157.0	8.2	5.5	29.
.....	.....	....	140.8	4.2	3.1	.....	.....	....	147.0	6.2	4.4	151.6	.....	....	.....	.....	....	30.
139.0	4.6	3.4	.....	.....	....	145.0	6.0	4.3	.....	.....	....	149.1	4.1	2.8	.....	.....	....	31.
139.7	9.0	6.9	141.5	.....	....	.....	.....	....	151.3	9.8	6.9	151.7	.....	....	.....	.....	....	32.
138.0	5.6	4.3	.....	.....	....	143.8	5.8	4.2	.....	.....	....	152.0	7.2	5.0	.....	.....	....	33.
141.2	3.2	2.3	.....	.....	....	146.2	5.0	3.5	157.2	7.9	5.3	152.4	6.2	4.2	.....	.....	....	34.
.....	.....	....	143.0	4.0	2.9	.....	.....	....	147.7	4.7	3.3	.....	.....	....	151.2	3.5	2.4	35.
.....	.....	....	143.5	5.6	4.1	146.1	.....	....	.....	.....	....	153.0	6.9	4.7	155.5	.....	....	36.
.....	.....	....	145.0	4.6	3.3	.....	.....	....	160.6	5.6	3.9	.....	.....	....	155.2	4.6	3.1	37.
141.4	6.0	4.4	.....	.....	....	148.4	7.0	4.9	.....	.....	....	158.0	9.6	6.5	.....	.....	....	38.
143.8	6.6	4.8	.....	.....	....	.....	.....	....	.....	.....	....	154.8	.....	....	.....	.....	....	39.
.....	.....	....	144.8	5.6	4.0	.....	.....	....	148.4	3.6	2.5	.....	.....	....	154.6	6.2	4.2	40.
145.3	.....	....	149.3	7.7	5.4	153.0	7.7	5.3	156.0	6.7	4.5	.....	.....	....	162.8	6.3	4.3	41.
145.6	5.6	4.0	.....	.....	....	152.0	6.4	4.4	.....	.....	....	158.4	6.4	4.2	.....	.....	....	42.
.....	.....	....	144.6	4.9	3.5	.....	.....	....	151.0	6.4	4.4	152.7	.....	....	.....	.....	....	43.
.....	.....	....	149.3	7.0	4.9	153.9	.....	....	.....	.....	....	159.5	5.6	3.6	.....	.....	....	44.
144.4	5.8	4.2	.....	.....	....	150.4	6.0	4.2	.....	.....	....	155.9	5.5	3.7	.....	.....	....	45.
144.2	5.8	4.2	.....	.....	....	151.6	7.4	5.1	.....	.....	....	156.4	4.8	3.2	.....	.....	....	46.
146.2	7.4	5.3	.....	.....	....	153.8	7.6	5.2	.....	.....	....	161.0	7.2	4.7	.....	.....	....	47.
143.4	4.1	2.9	146.6	.....	....	148.5	5.1	3.6	151.7	5.1	3.5	161.2	12.7	8.6	.....	.....	....	48.
.....	.....	....	154.4	4.8	3.2	.....	.....	....	160.2	5.8	3.8	.....	.....	....	167.0	6.8	4.2	49.
.....	.....	....	.....	.....	....	168.1	.....	....	170.4	.....	....	.....	.....	....	.....	.....	....	50.
137.3	5.7	4.2	140.3	5.5	3.9	144.6	6.4	4.5	146.8	6.6	4.6	150.7	6.9	4.7	151.1	6.1	4.0	Av.
.....	1.0	....	.....	1.0	....	.....	.8	....	.....	1.4	....	.....	1.6	....	.....	1.0	....	Av. var.

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TABLE 5.—*Increments of growth in height for a group of*

No.	12 years.			12½ years.			13 years.			13½ years.			14 years.			14½ years.		
	Height.	Increment, 11–12 years.	Per cent gain.	Height.	Increment, 11½–12½ years.	Per cent gain.	Height.	Increment, 12–13 years.	Per cent gain.	Height.	Increment, 12½–13½ years.	Per cent gain.	Height.	Increment, 13–14 years.	Per cent gain.	Height.	Increment, 13–14 years.	Per cent gain.
	Cm.	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*	
51	128.0	.....	.....	134.0	.....	.....	.....	.....	.....	139.4	5.4	4.0	.....	.....	.....	145.2	5.8	4.2
52	132.8	5.2	4.1	.....	.....	.....	140.8	8.0	6.0	.....	.....	.....	144.4	3.6	2.6	.....	.....	.....
53	.....	.....	.....	134.6	.....	.....	.....	.....	.....	139.8	5.2	3.9	.....	.....	.....	149.0	9.2	6.6
54	.....	.....	.....	134.4	2.4	1.8	137.0	.....	.....	.....	.....	.....	144.0	7.0	5.1	.....	.....	.....
55	.....	.....	.....	136.0	3.0	2.3	139.0	.....	.....	.....	.....	.....	144.2	5.2	3.8	.....	.....	.....
56	137.2	3.0	2.2	140.2	.....	.....	.....	.....	.....	146.4	6.2	4.4	.....	.....	.....	152.2	5.8	3.9
57	137.8	3.8	2.8	144.0	8.5	6.3	146.9	9.1	6.6	.....	.....	.....	147.9	1.0	.7	153.0	.....	.....
58	.....	.....	.....	138.2	6.4	4.9	.....	.....	.....	145.6	7.4	5.4	.....	.....	.....	150.4	4.8	3.3
59	138.6	7.6	5.8	.....	.....	.....	144.8	6.2	4.5	.....	.....	.....	148.4	3.6	2.5	.....	.....	.....
60	138.8	6.6	4.9	.....	.....	.....	143.8	5.0	3.6	149.0	.....	.....	.....	.....	.....	153.6	4.6	3.2
61	139.0	4.2	3.1	.....	.....	.....	143.0	4.0	2.9	.....	.....	.....	148.0	5.0	3.5	.....	.....	.....
62	139.4	6.0	4.5	140.8	5.0	3.7	.....	.....	.....	147.3	6.5	4.6	151.8	.....	.....	.....	.....	.....
63	139.7	.....	.....	.....	.....	.....	143.4	3.7	2.6	147.3	.....	.....	148.5	5.1	3.6	152.1	4.8	3.3
64	140.3	8.3	6.3	.....	.....	.....	146.0	5.7	4.1	149.8	.....	.....	151.2	5.2	3.6	155.0	5.2	3.5
65	.....	.....	.....	141.0	5.6	4.1	145.4	.....	.....	.....	.....	.....	152.0	6.6	4.5	.....	.....	.....
66	141.4	5.7	4.2	.....	.....	.....	149.2	7.8	5.5	154.3	.....	.....	157.7	8.5	5.7	158.7	4.4	2.8
67	142.0	9.0	6.8	144.9	.....	.....	.....	.....	.....	147.6	2.7	1.9	148.0	.....	.....	.....	.....	.....
68	143.2	4.4	3.2	146.8	.....	.....	.....	.....	.....	153.4	6.6	4.5	.....	.....	.....	160.0	6.6	4.3
69	143.2	.....	.....	.....	.....	.....	.....	.....	.....	151.8	.....	.....	.....	.....	.....	157.6	5.8	3.8
70	.....	.....	.....	143.4	5.4	3.9	.....	.....	.....	150.4	7.0	4.9	.....	.....	.....	154.6	4.2	2.8
71	144.4	.....	.....	.....	.....	.....	149.2	4.8	3.3	.....	.....	.....	151.1	1.9	1.3	.....	.....	.....
72	145.4	4.2	3.0	.....	.....	.....	150.8	5.4	3.7	.....	.....	.....	155.8	5.0	3.3	.....	.....	.....
73	145.8	6.2	4.4	.....	.....	.....	148.4	2.6	1.8	.....	.....	.....	150.6	2.2	1.5	.....	.....	.....
74	.....	.....	.....	147.0	4.8	3.4	.....	.....	.....	149.0	2.0	1.4	.....	.....	.....	151.0	2.0	1.3
75	147.6	9.6	7.0	.....	.....	.....	153.6	6.0	4.1	.....	.....	.....	156.4	2.8	1.8	.....	.....	.....
Av.	.....	6.0	4.5	.....	5.1	3.8	.....	5.7	4.1	.....	5.4	3.9	.....	4.5	3.1	.....	5.3	3.6
Av. var.	.....	1.6	.....	.....	1.3	.....	.....	1.4	.....	.....	1.4	.....	.....	1.5	.....	.....	1.2	.....
76	143.0	.....	.....	.....	.....	.....	151.4	8.4	5.9	.....	.....	.....	159.4	8.0	5.3	.....	.....	.....
77	145.4	3.8	2.7	.....	.....	.....	152.0	6.6	4.5	.....	.....	.....	157.4	5.4	3.6	.....	.....	.....
78	146.2	7.4	5.3	.....	.....	.....	153.6	7.4	5.1	158.6	.....	.....	.....	.....	.....	165.1	6.5	4.1
79	.....	.....	.....	146.6	6.2	4.4	.....	.....	.....	153.4	6.8	4.6	.....	.....	.....	160.1	6.7	4.3
80	.....	.....	.....	146.5	8.0	5.8	.....	.....	.....	148.3	1.8	1.2	152.0	.....	.....	154.4	6.1	4.1
81	147.2	.....	.....	.....	.....	.....	150.8	3.6	2.4	.....	.....	.....	158.0	7.2	4.8	.....	.....	.....
82	147.3	7.3	7.3	.....	.....	.....	151.0	3.7	2.6	154.3	.....	.....	159.0	8.0	5.3	163.0	8.7	5.6
83	147.8	5.6	3.9	.....	.....	.....	155.2	7.4	5.0	157.6	.....	.....	159.4	4.2	2.7	.....	.....	.....
84	148.4	.....	.....	.....	.....	.....	154.0	5.6	3.8	.....	.....	.....	156.0	2.0	1.3	.....	.....	.....
85	148.7	.....	.....	152.4	6.9	4.7	155.5	6.8	4.6	.....	.....	.....	160.7	5.2	3.3	162.1	.....	.....
86	149.2	5.2	3.6	.....	.....	.....	157.4	8.2	5.5	.....	.....	.....	162.0	4.6	2.9	.....	.....	.....
87	.....	.....	.....	149.8	5.4	3.7	154.8	.....	.....	.....	.....	.....	162.2	7.4	4.8	.....	.....	.....
88	150.4	.....	.....	154.1	10.0	6.9	158.2	7.8	5.2	.....	.....	.....	162.2	4.0	2.5	162.9	.....	.....
89	151.7	3.2	2.2	.....	.....	.....	160.0	8.3	5.5	.....	.....	.....	.....	.....	.....	166.3	.....	.....
90	.....	.....	.....	151.4	9.0	6.3	.....	.....	.....	156.6	5.2	3.4	.....	.....	.....	159.0	2.4	1.5
91	.....	.....	.....	154.9	.....	.....	.....	.....	.....	160.0	5.1	3.3	163.7	.....	.....	164.7	4.7	2.9
92	155.8	11.5	7.9	.....	.....	.....	161.0	5.2	3.3	.....	.....	.....	163.0	2.0	1.2	164.6	.....	.....
93	156.2	.....	.....	157.7	.....	.....	159.2	3.0	2.9	162.0	4.3	2.7	162.4	3.2	2.0	.....	.....	.....
94	.....	.....	.....	157.0	10.9	7.5	.....	.....	.....	160.6	3.6	2.3	162.2	.....	.....	.....	.....	.....
95	156.6	7.0	4.6	.....	.....	.....	163.8	7.2	4.6	.....	.....	.....	167.6	3.8	1.3	.....	.....	.....
96	158.0	8.0	5.3	.....	.....	.....	158.7	.7	.4	161.2	.....	.....	162.0	3.3	2.1	162.2	1.0	.6
97	159.0	.....	.....	.....	.....	.....	164.8	5.8	3.6	.....	.....	.....	167.0	2.2	1.3	.....	.....	.....
98	.....	.....	.....	161.0	7.0	4.5	.....	.....	.....	167.8	6.8	4.2	.....	.....	.....	169.4	1.6	1.0
99	.....	.....	.....	163.6	5.6	3.5	.....	.....	.....	167.0	3.4	2.1	.....	.....	.....	168.0	1.0	.6
100	.....	.....	.....	164.2	8.2	5.3	.....	.....	.....	169.0	4.8	2.9	.....	.....	.....	170.6	1.6	.9
Av.	145.2	6.6	4.7	147.4	7.7	5.3	151.3	6.0	4.1	153.9	4.6	3.0	155.9	4.7	3.0	158.7	4.2	2.6
Av. var.	.....	1.9	.....	.....	1.5	.....	.....	1.8	.....	.....	1.2	.....	.....	1.7	.....	.....	2.5	.....

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50 girls from 12 to 17 years of age with consecutive measurements.

15 years.			15½ years.			16 years.			16½ years.			17 years.			No.
Height.	Increment, 14–15 years.	Per cent gain.	Height.	Increment, 14½–15 years.	Per cent gain.	Height.	Increment, 15–16 years.	Per cent gain.	Height.	Increment, 15½–16½ years.	Per cent gain.	Height.	Increment, 16–17 years.	Per cent gain.	
Cm.	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		
.....	.....	.....	148.0	3.0	2.1	150.0	.....	.....	150.0	2.0	1.4	.....	.....	.....	51.
150.0	5.6	3.9	.....	.....	.....	150.8	0.8	0.5	.....	.....	.....	150.8	0.0	0.0	52.
.....	.....	.....	154.0	6.0	4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	53.
147.8	3.8	2.6	.....	.....	.....	150.4	2.6	1.8	.....	.....	.....	151.1	.....	.....	54.
150.6	6.4	4.4	.....	.....	.....	154.1	3.5	2.3	.....	.....	.....	156.4	2.3	1.5	55.
.....	.....	.....	157.0	4.8	3.2	.....	.....	.....	159.8	2.8	1.8	.....	.....	.....	56.
154.0	6.1	4.1	156.7	3.7	2.4	157.7	3.7	2.4	.....	.....	.....	160.0	2.3	1.5	57.
.....	.....	.....	153.2	2.8	1.9	.....	.....	.....	153.2	.0	.0	.....	.....	.....	58.
149.2	.8	.5	.....	.....	.....	151.4	2.2	1.5	.....	.....	.....	151.6	.2	.1	59.
.....	.....	.....	155.0	1.4	.9	.....	.....	.....	156.6	1.6	1.0	.....	.....	.....	60.
152.0	4.0	2.7	.....	.....	.....	153.8	1.8	1.2	.....	.....	.....	.....	.....	.....	61.
155.2	3.4	2.2	157.1	.....	.....	.....	.....	.....	158.7	1.6	1.0	158.7	.....	.....	62.
152.1	3.6	2.4	.....	.....	.....	152.0	— .1	— .7	153.4	.....	.....	.....	.....	.....	63.
155.0	3.8	2.5	.....	.....	.....	158.7	3.7	2.4	158.7	.....	.....	158.7	.....	.0	64.
156.0	4.0	2.6	.....	.....	.....	158.0	2.0	1.3	.....	.....	.....	159.0	1.0	.6	65.
159.6	1.9	1.2	161.4	2.7	1.7	161.5	1.9	1.2	161.6	.2	.1	161.6	.1	.....	66.
.....	.....	.....	149.1	.....	.....	.....	.....	.....	151.0	1.9	1.3	.....	.....	.....	67.
.....	.....	.....	163.2	3.2	2.0	.....	.....	.....	163.8	.6	.4	.....	.....	.....	68.
161.0	.....	.....	.....	.....	.....	160.6	— .4	— .3	.....	.....	.....	166.0	5.4	3.4	69.
.....	.....	.....	156.6	2.0	1.3	.....	.....	.....	156.2	— .4	— .3	.....	.....	.....	70.
155.0	3.9	2.6	.....	.....	.....	155.0	.....	.0	.....	.....	.....	154.5	— .5	— .3	71.
159.0	3.2	2.1	.....	.....	.....	159.8	.8	.5	.....	.....	.....	160.4	.6	.4	72.
152.1	1.5	1.0	.....	.....	.....	152.3	.2	.1	.....	.....	.....	152.3	.0	.0	73.
.....	.....	.....	151.6	.6	.4	.....	.....	.....	152.2	.6	.4	.....	.....	.....	74.
156.6	.2	.1	.....	.....	.....	158.4	1.8	1.2	.....	.....	.....	158.4	.0	.0	75.
.....	3.5	2.3	.....	3.0	2.0	.....	1.6	1.0	.....	1.1	.7	.....	1.0	.7	
.....	1.3	.....	.....	1.1	.....	.....	1.1	.....	.....	.9	.....	.....	1.3	.....	
162.0	3.6	2.3	.....	.....	.....	165.0	2.0	1.2	.....	.....	.....	167.0	2.0	1.2	76.
163.0	5.6	3.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	166.0	.....	.....	77.
167.0	.....	.....	169.2	4.1	2.5	170.0	3.0	1.8	170.0	.8	.5	.....	.....	.....	78.
.....	.....	.....	163.8	3.8	2.4	.....	.....	.....	164.8	1.0	.6	.....	.....	.....	79.
.....	.....	.....	162.5	8.1	5.2	.....	.....	.....	166.3	3.8	2.3	.....	.....	.....	80.
163.2	5.2	3.3	164.0	.....	.....	164.4	1.2	.7	.....	.....	.....	164.8	.4	.2	81.
164.2	5.2	3.3	.....	.....	.....	166.3	2.1	1.3	166.3	.....	.....	167.0	.7	.4	82.
162.6	3.2	2.0	.....	.....	.....	164.6	2.0	1.2	.....	.....	.....	164.6	.0	.0	83.
158.6	2.6	1.7	.....	.....	.....	159.4	.8	.5	.....	.....	.....	159.6	.2	.1	84.
163.0	2.3	1.4	.....	.....	.....	.....	.....	.....	164.4	.....	.....	.....	.....	.....	85.
166.0	4.0	2.5	.....	.....	.....	167.0	1.0	.6	.....	.....	.....	168.0	1.0	.6	86.
164.4	2.2	1.4	.....	.....	.....	169.2	4.8	2.9	.....	.....	.....	170.8	1.6	.9	87.
163.4	1.2	1.7	165.0	2.1	1.3	.....	.....	.....	165.4	.4	.2	166.0	.....	.....	88.
167.6	.....	.....	.....	.....	.....	168.8	1.2	.7	.....	.....	.....	170.1	1.3	.8	89.
.....	.....	.....	160.3	1.3	.8	.....	.....	.....	160.3	.0	.0	.....	.....	.....	90.
165.8	2.1	1.3	166.5	1.8	1.1	.....	.....	.....	167.6	1.1	.7	167.7	.....	.....	91.
.....	.....	.....	.....	.....	.....	166.2	.....	.....	167.0	.....	.....	.....	.....	.....	92.
.....	.....	.....	.....	.....	.....	163.0	.....	.....	163.5	.....	.....	.....	.....	.....	93.
162.8	.6	.4	.....	.....	.....	.....	.....	.....	162.8	.....	.....	163.8	.....	.....	94.
169.6	2.0	1.2	170.4	.....	.....	.....	.....	.....	170.8	.4	.2	.....	.....	.....	95.
162.8	.5	.3	162.5	.3	.2	162.5	.0	.0	162.5	.0	.0	163.7	1.2	.7	96.
170.4	3.4	2.0	.....	.....	.....	170.6	.2	.1	.....	.....	.....	170.6	.0	.0	97.
.....	.....	.....	170.8	1.4	.8	.....	.....	.....	171.0	.2	.1	.....	.....	.....	98.
.....	.....	.....	168.0	.0	.0	.....	.....	.....	168.0	.0	.0	.....	.....	.....	99.
.....	.....	.....	171.4	.8	.5	.....	.....	.....	171.4	.0	.0	.....	.....	.....	100.
163.0	2.9	1.8	160.7	2.4	1.5	160.0	1.7	1.0	161.8	.7	.4	161.1	.8	.5	
.....	1.3	.....	.....	1.5	.....	.....	1.0	.....	.....	.7	.....	.....	.6	.....	

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7. AVERAGE INCREMENTS IN HEIGHT, WEIGHT, AND LUNG CAPACITY.

A study of the individual measurements in height reveals different correlations in growth for boys and girls above the median (average) from those below. That is, the rhythms of fluctuations of growth for tall children differ materially from those for short children. This is demonstrated by the norms found, which serve in this connection as a temporary expedient for estimating the relative heights of this group of children and as a means for dividing them into two general groups, those lying on and above the median and those lying below the median. There are some who cross the median, and others whose curves fluctuate toward or from the median. Those lying above the median height begin and end their periods of acceleration and arrest earlier than those below the median. The increment tables following give the averages and average variations in yearly and half-yearly increments for boys and for girls in height and weight in the two Chicago schools and in the Horace Mann School.

As will be noted, the results give the greatest absolute increment and the greatest average deviations during the adolescent period, beginning at 12 years of age for boys above the median height and beginning at 10½ years for the girls above the median. This marked acceleration continues until 15½ for boys and until 13 for girls. For those below the median height the greatest average acceleration begins at 14 years for boys, and at 11½ years for girls, and continues, for the boys, until 17½ and for the girls until 15½. The tables also show there is a period of slightly more marked acceleration or arrest from 6 to 8 years of age, depending on the relative height and the median. There then follows a gradual decrease in absolute and relative increment until the advent of the pubescent increase. The results hold for each school separately and for the groups collectively, for boys and for girls.

No individuals were eliminated whose measurements and ages were found to be accurate, but as stated above there were some whose first measurements were below the median and whose last measurements were above the median; these were grouped with those above the median. There were a few others whose first measurements were above the median and whose last measurements were below the median; these were grouped with those below the median. The fluctuations in the growth of these latter children tend to obliterate the characteristics of the two main groups, i. e., they tend to destroy rather than accentuate the most common pubescent tendencies of each group. It did not, however, seem best to form a separate division of these "crosses," since it would be impossible to draw a distinct line of demarcation between those above and those below the median.

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The rhythms and fluctuations of growth in height for the children above the median show that these boys and girls mature in physiological growth earlier than those below the median, since their periods of acceleration and arrest begin earlier and end earlier. There are individual measurements lying on either side of these medians, arranged in all probability in a normal distribution from the tallest to the shortest for each chronological age. If this is the case, as the individual curves will show, we are justified in making averages or medians only when the average or norm is based on the physiological age instead of the chronological age. A new and very important educational problem is evoked here: How may we formulate a measuring scale for determining the physiological age of the child? A careful study of individual growth curves, based on consecutive measurements, it is hoped, will help to answer this question.

These significant characteristics of tall and short children, differing in their periods of acceleration and arrest, may also be noted in the groups of 200 individuals whose heights and increments are given in Tables 4, 5, and 13 to 22.

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TABLE 6.—*Averages and average deviations of height and weight increments of boys and girls, from the University of Chicago schools and the Francis W. Parker School.*

Ages.	Boys.								Girls.							
	Height.				Weight.				Height.				Weight.			
	Above median.		Below median.		Above median.		Below median.		Above median.		Below median.		Above median.		Below median.	
	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.
	Cm.	*Cm.*	*Cm.*	*Cm.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
6 - 6½	4.4	0.3	4.1	0.5	.....	.....	.....	.....	2.9	0.2	1.6	0.4	3.1	1.0	2.4	.....
6½- 7	.....	.....	3.1	1.1	.....	.....	2.3	1.9	2.9	.4	3.6	.6	3.1	1.4	3.8	0.4
6 - 7	6.4	1.4	4.7	.8	.....	.....	2.0	2.4	4.7	.4	5.7	.4	3.2	1.7	5.4	.4
7 - 7½	4.3	.6	3.5	.7	5.8	3.4	1.4	1.1	2.6	1.0	2.3	.0	1.0	.7	2.7	.5
6½- 7½	6.0	1.8	4.4	1.5	8.5	1.9	3.6	2.2	5.2	1.2	5.2	.5	5.0	1.0	4.0	.3
7½- 8	3.1	.7	3.0	1.0	6.8	4.4	3.5	.9	2.6	.9	2.1	.5	3.1	1.9	1.5	.0
7 - 8	6.4	1.0	5.5	.8	9.2	2.1	5.2	1.2	4.9	.9	5.2	1.2	3.4	2.5	4.4	1.9
8 - 8½	2.9	.8	2.0	.5	4.5	2.7	1.8	1.6	2.7	.7	2.9	.9	3.4	1.2	1.9	.7
7½- 8½	5.7	.8	5.3	.9	5.6	4.0	7.4	2.5	5.5	1.1	5.2	.9	5.1	2.5	6.6	2.5
8½- 9	2.9	.9	2.2	1.2	3.9	2.3	1.9	1.9	3.1	.8	2.5	.6	3.4	2.6	2.6	4.4
8 - 9	5.3	1.3	4.6	1.1	4.9	2.1	4.8	1.3	5.1	1.3	5.0	.8	7.6	2.8	5.9	1.7
9 - 9½	3.3	.8	3.3	.9	2.3	1.4	2.4	1.5	2.6	.9	2.9	.8	4.5	2.5	2.2	2.3
8½- 9½	5.4	1.3	5.0	.5	5.1	4.5	5.6	2.3	5.3	.8	5.0	1.2	9.2	7.6	5.0	1.4
9½-10	2.2	1.1	2.9	.8	3.8	1.2	4.8	1.9	3.0	.7	3.1	1.0	3.9	1.7	2.3	2.7
9 -10	5.4	.7	4.4	.7	5.6	1.7	4.7	2.0	5.2	1.1	4.7	1.6	6.5	2.4	4.6	1.5
10 -10½	2.8	.8	3.9	1.4	3.3	1.2	3.4	1.3	3.4	1.0	2.6	.7	5.6	2.9	4.2	3.6
9½-10½	4.6	1.4	4.2	.9	4.8	2.1	4.3	1.9	5.9	1.3	4.7	1.1	8.0	4.4	6.2	1.7
10½-11	2.3	.7	2.4	1.2	2.7	1.7	3.2	.8	2.7	1.0	3.2	1.5	3.6	2.7	2.7	1.8
10 -11	4.6	.9	4.2	1.3	4.8	2.7	2.9	1.8	5.3	1.7	5.9	1.3	7.3	3.8	6.6	4.4
11 -11½	2.6	1.7	2.0	.7	2.9	3.6	3.1	.8	3.6	1.3	1.9	.6	5.1	2.1	3.9	1.3
10½-11½	4.9	1.0	5.4	1.2	8.5	2.8	5.9	2.1	7.4	1.9	4.3	.9	9.2	3.9	6.0	2.5
11½-12	3.3	.8	2.8	1.8	6.3	4.3	5.1	3.3	3.7	1.4	3.2	.9	6.9	3.5	4.1	2.4
11 -12	5.2	1.4	4.6	1.3	8.6	3.3	6.0	1.9	7.0	1.7	5.3	1.1	10.9	4.6	7.1	3.1
12 -12½	3.4	1.3	2.4	.3	4.1	1.7	2.7	1.5	4.1	1.2	3.0	1.0	8.8	4.1	5.9	2.4
11½-12½	5.2	1.6	5.0	1.6	9.6	5.0	6.5	3.7	7.5	1.7	6.2	1.5	15.2	5.5	9.1	3.5
12½-13	4.1	1.0	2.0	.9	6.0	2.4	3.8	1.7	3.3	1.4	4.0	1.7	4.9	3.4	7.1	2.6
12 -13	6.2	2.0	4.6	1.3	10.0	4.8	5.8	2.9	6.6	1.4	6.2	2.4	11.7	4.0	9.6	3.1
13 -13½	4.0	1.8	2.8	1.3	10.4	5.1	4.5	3.4	2.6	1.0	3.6	.7	6.3	4.2	4.9	2.0
12½-13½	6.3	2.3	5.4	1.5	9.7	4.0	9.9	4.2	5.2	1.2	6.1	2.0	11.8	4.8	10.2	3.0
13½-14	3.0	.3	4.0	1.5	5.0	2.8	6.7	3.0	2.0	1.2	2.7	1.2	4.7	3.7	3.9	3.1
13 -14	5.4	2.0	5.3	1.5	10.6	5.1	8.8	5.3	4.0	1.4	5.7	1.7	10.4	5.4	11.1	5.1
14 -14½	5.2	1.2	3.9	1.2	7.2	4.6	6.0	3.8	1.5	.3	2.9	.9	5.4	6.3	6.5	4.0
13½-14½	6.3	1.7	5.3	1.5	13.0	2.1	14.0	3.3	4.1	1.5	6.3	2.1	11.5	3.5	11.9	6.1
14½-15	4.2	1.5	3.6	.9	11.1	1.4	9.2	1.1	1.1	.9	1.2	1.0	3.5	2.8	6.7	4.3
14 -15	7.6	1.3	6.3	.7	16.9	.5	12.5	3.8	2.5	.9	3.9	1.6	9.2	4.3	11.7	4.7
15 -15½	3.4	1.0	2.6	1.0	14.0	6.0	8.4	1.6	1.2	1.1	1.8	.9	2.8	2.7	1.7	4.3
14½-15½	6.1	2.3	7.2	1.3	14.2	2.6	15.2	5.2	2.8	1.2	3.1	1.8	5.3	2.4	8.1	2.1

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15½–16	2.1	.4	3.6	1.4	1.5	.6	6.5	2.7	.4	.4	.5	.6	1.5	4.4	1.1	2.1
15 –16	4.9	.1	6.8	2.0	17.2	7.4	11.6	6.8	1.8	1.5	1.2	.7	4.6	2.3	4.9	3.1
16 –16½	1.5	1.2	2.8	1.4	6.0	1.0	9.5	3.2	.4	.4	.6	.6	.7	3.1	1.8	3.2
15½–16½	2.2	2.1	5.8	2.2	13.2	4.4	13.6	5.9	1.4	.9	1.4	.9	−.6	4.6	4.1	3.7
16½–17	2.5	.....	4.8	2.4	.....	.....	6.5	2.4	.6	.6	.8	.6	2.6	1.5	1.1	4.5
16 –17	.....	.....	4.9	3.8	.....	.....	12.9	2.1	.7	.6	.7	.5	3.3	2.8	5.5	3.8
17 –17½	.....	.....	2.3	.2	.....	.....	8.4	6.5	.2	.3	.6	.3	2.8	2.4	2.6	3.0
16½–17½	.....	.....	6.1	2.6	.....	.....	11.7	4.3	.7	.5	.9	.9	4.3	.7	6.6	1.1
17½–18	.....	.....	1.5	.5	.....	.....	7.7	5.0	.4	.5	.4	.1	−2.4	2.6	−1.2	4.2
17 –18	.....	.....	4.0	2.4	.....	.....	.....	.....	.4	.3	.4	.4	.2	3.0	5.2	.0

TABLE 7.—*Averages and average deviations of height and weight increments of boys and girls from the Horace Mann School.*

Ages.	Boys.								Girls.							
	Height.				Weight.				Height.				Weight.			
	Above median.		Below median.		Above median.		Below median.		Above median.		Below median.		above median.		Below median.	
	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.	Average.	Average deviation.
	Cm.	*Cm.*	*Cm.*	*Cm.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Cm.*	*Cm.*	*Cm.*	*Cm.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
6 – 7	7.2	1.1	4.9	1.1	6.5	2.4	4.8	1.8	6.5	1.4	5.4	0.5	5.0	1.1	4.5	1.1
6½– 7½	5.6	.6	4.8	.9	4.7	1.8	4.6	.6	6.2	.6	5.8	1.1	5.9	1.4	4.2	1.6
7 – 8	5.9	.9	4.8	.7	7.3	1.8	5.5	1.5	6.2	1.2	5.6	.8	5.9	2.8	4.5	1.3
7½– 8½	5.9	.7	4.7	.7	7.5	1.6	4.9	2.0	5.4	.8	5.1	.9	6.5	1.8	4.6	1.5
8 – 9	5.6	.7	4.9	1.2	7.8	2.4	5.7	2.1	5.6	.9	5.1	.6	8.3	3.7	6.0	2.4
8½– 9½	5.2	.7	5.2	.9	6.1	2.1	4.9	1.2	5.7	.9	4.8	.6	7.8	2.3	5.1	1.9
9 –10	5.3	.7	4.8	.8	6.9	1.9	5.8	2.1	5.7	1.3	5.0	.7	8.7	4.3	6.4	2.6
9½–10½	4.9	.7	4.3	.6	6.9	2.3	6.0	1.1	6.0	.9	4.5	.5	7.9	3.4	5.8	2.5
10 –11	4.8	.6	4.2	.7	5.7	2.2	3.9	1.5	5.7	1.1	5.1	.9	8.7	3.3	7.7	3.0
10½–11½	3.7	1.0	4.0	.7	8.6	2.9	5.7	1.9	6.5	1.4	4.9	.9	11.1	4.4	5.9	2.2
11 –12	5.3	1.0	4.5	1.0	8.3	4.4	5.4	1.4	7.1	1.5	5.9	1.0	12.2	4.1	8.5	4.0
11½–12½	5.4	1.4	4.9	1.1	8.4	3.8	6.6	2.5	7.1	1.5	5.5	1.0	10.7	4.4	9.7	3.5
12 –13	6.4	1.4	5.1	1.3	13.1	6.9	7.6	2.7	5.7	1.6	5.9	1.5	11.1	3.2	10.8	3.7
12½–13½	6.5	1.7	5.4	1.3	10.3	4.9	7.2	3.4	5.1	1.4	6.4	1.0	11.8	4.4	13.3	6.9
13 –14	[1] 7.2	1.8	5.5	1.6	11.1	4.1	10.3	4.1	3.8	1.7	4.4	1.4	10.8	6.0	11.0	4.2
13½–14½	6.9	2.1	5.8	1.8	11.9	3.9	10.1	3.3	3.5	1.4	3.5	1.3	9.4	5.2	10.5	4.3
14 –15	6.5	2.1	6.6	2.4	11.7	4.8	12.0	3.3	2.8	1.6	2.7	1.6	8.0	4.3	7.8	4.3
14½–15½	6.4	2.3	6.2	2.4	11.2	5.6	14.1	1.8	1.2	6.3	1.8	1.6	5.7	3.2	9.5	3.5
15 –16	5.1	2.0	5.7	1.9	15.2	4.9	13.8	3.3	1.2	1.0	2.2	1.0	6.8	4.0	5.3	3.9
15½–16½	3.9	1.2	4.6	2.7	13.3	5.8	10.1	3.6	.8	.6	1.4	1.0	3.4	4.8	4.3	3.9
16 –17	4.9	2.6	3.7	2.3	9.6	4.5	7.3	1.8	1.2	.8	.8	.6	3.8	6.0	2.9	2.7
16½–17½	2.2	1.2	3.2	1.2	9.2	3.1	5.5	3.5	.4	.5	.2	.3	2.0	4.0	2.0	4.7
17 –18	1.5	.7	2.0	1.3	1.3	4.5	1.1	.0	.5	.4	.5	.5	3.9	4.3	5.2	2.0

[1] The braces show the periods of greatest annual increments; for those above the median this period is earlier than for those below the median.

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Since these children were not all measured an equal number of times and, therefore, individuals are constantly entering and leaving the yearly and half-yearly groups, the sum of the averages of the half-yearly increments do not in all cases equal the averages of the yearly increments. These conditions vitiate the results in so far that we do not have a truly homogeneous group throughout. These facts explain why it is not possible to get an average increment by taking the difference between the average measurement of two intervals, since this method would in some cases give a minus quantity if a majority of tall individuals were in the former and not in the latter group. The individual increments also help to explain why the composite curve of the average heights based on single measurements of different individuals at different ages does not represent the growth of any individual or any group of individuals. Therefore the method of finding averages on single measurements, which has been universally used in the past (on account of lack of data based on consecutive measurements), must be abandoned as a method for obtaining norms.

The following are some of the greatest gains in height, weight, and lung capacity among all the boys and girls included in the entire study. Those whose numbers are below 200 have been taken from the tables just given and the other ones from the groups of individual growth curves. The largest increments of growth are as follows:

TABLE 8.—*Largest individual increments in growth.*

INCREASE IN HEIGHT.

BOYS BELOW THE MEDIAN HEIGHT.

Numbers.[1]	Age.	Height.	Age.	Height.	Increase in height.	
	Y. m. d.	*Cm.*	*Y. m. d.*	*Cm.*	*Cm.*	*Per ct.*
151	12 4 19	137.2	13 8 19	149.0	11.8	8.6
153	15 1 6	149.2	16 0 2	159.0	9.8	6.7
153	16 0 2	159.0	17 1 3	170.0	11.0	6.9
156	15 11 17	154.9	16 11 18	165.6	10.7	7.0
165	13 5 20	147.2	14 5 6	157.5	10.3	7.0
174	14 4 24	155.2	15 5 9	165.7	10.5	6.8
BOYS ABOVE THE MEDIAN HEIGHT.						
128	11 9 9	156.5	12 9 7	166.7	10.2	6.5
176	14 0 0	148.5	15 0 0	158.3	9.8	6.6
187	13 2 5	156.1	14 4 22	167.0	10.9	7.0
189	14 3 9	159.3	15 4 15	169.5	10.2	6.4
GIRLS BELOW THE MEDIAN HEIGHT.						
53	13 2 18	139.5	14 5 1	149.0	9.5	6.6
82	13 6 30	154.3	14 7 20	163.0	8.7	5.6
20	11 11 0	137.0	13 3 0	147.3	10.3	7.5
106	13 5 0	141.9	14 5 2	153.1	11.2	7.9
831	11 3 4	138.6	12 4 9	148.8	10.2	7.4

[1] These numbers correspond to those in Tables 4, 5, and 13-22, and in the Health Notes, pp. 118-134.

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TABLE 8.—*Largest individual increments in growth*—Continued.

INCREASE IN HEIGHT—Continued.

GIRLS ABOVE THE MEDIAN HEIGHT.

Numbers.	Age.			Height.	Age.			Height.	Increase in height.	
	Y.	*m.*	*d.*	*Cm.*	*Y.*	*m.*	*d.*	*Cm.*	*Cm.*	*Per ct.*
92	10	9	19	144.3	12	1	3	155.8	11.5	7.9
94	11	3	22	146.1	12	7	13	157.2	11.1	7.6
95	10	4	26	145.6	11	8	9	156.8	11.2	7.7
97	10	10	19	144.3	12	1	3	155.8	11.5	8.0
99	11	4	23	146.1	12	7	10	157.9	11.8	8.1
64	9	10	12	138.9	11	4	29	151.4	12.5	9.0
49	10	9	13	147.9	11	11	10	157.5	9.6	6.5
310	11	9	12	147.6	12	7	4	158.5	10.9	7.4

LARGEST INCREMENTS OF GROWTH IN WEIGHT.

BOYS BELOW THE MEDIAN WEIGHT.

Numbers.	Age.			Weight.	Age.			Weight.	Increment.	
	Y.	*m.*	*d.*	*Lbs.*	*Y.*	*m.*	*d.*	*Lbs.*	*Lbs.*	*Per ct.*
151	12	4	19	66.3	13	8	19	87.5	21.2	32.0
172	15	8	7	117.0	16	6	6	141.7	24.7	21.1

BOYS ABOVE THE MEDIAN WEIGHT.

176	14	4	26	93.2	15	5	9	117.5	24.3	26.1
140	9	8	3	70.2	10	8	15	87.6	17.4	24.7
146	11	11	2	110.7	12	11	7	133.1	22.4	22.0
191	14	6	5	108.0	15	6	24	132.0	24.0	22.2

GIRLS BELOW THE MEDIAN WEIGHT.

17	9	11	26	53.9	10	11	30	77.2	23.3	43.2
18	13	10	23	97.9	14	10	3	117.3	19.4	19.8
16	13	11	12	78.0	15	1	13	97.2	19.2	24.6
18	12	10	26	94.5	13	10	23	113.8	19.3	20.3
9	12	7	0	78.1	13	4	16	98.1	20.0	25.5
4	14	5	9	111.8	15	5	0	131.1	19.3	17.2

GIRLS ABOVE THE MEDIAN WEIGHT.

8	11	5	24	79.9	12	6	18	115.6	35.7	45.5
1	11	4	10	125.0	12	5	8	149.9	24.9	18.0
80	10	2	21	72.2	11	2	20	96.8	24.8	34.3
7	11	3	10	104.5	12	3	14	124.9	20.4	19.5
5	12	6	11	127.0	13	9	24	147.8	20.8	16.3
0	12	9	0	103.2	13	7	24	124.2	21.0	20.3

LARGEST INCREMENTS OF GROWTH IN LUNG CAPACITY.

BOYS BELOW THE MEDIAN HEIGHT.

Numbers.	Age.			Lung capacity.	Age.			Lung capacity.	Increment.	
	Y.	*m.*	*d.*	*Cu. in.*	*Y.*	*m.*	*d.*	*Cu. in.*	*Cu. in.*	*Per ct.*
1	14	4	8	163	15	4	7	210	47	28.8
1	16	0	2	170	17	1	3	220	50	28.8
1	16	3	6	215	17	3	3	265	50	23.2
1	10	10	1	106	11	11	21	150	44	43.4

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TABLE 8.—*Largest individual increments in growth*—Continued.

LARGEST INCREMENTS OF GROWTH IN LUNG CAPACITY—Continued.

BOYS ABOVE THE MEDIAN HEIGHT.

Numbers.	Age.	Lung capacity.	Age.	Lung capacity.	Increment.	
	Y. m. d.	Cu. in.	Y. m. d.	Cu. in.	Cu. in.	Per ct.
128	11 9 9	184	12 9 7	230	46	25.0
139	12 1 21	100	13 1 20	145	45	45.0
179	13 9 22	152	14 10 13	218	66	36.8
187	13 3 5	164	14 4 22	212	48	28.7
192	13 7 14	188	14 3 24	238	50	26.6
199	13 1 26	190	14 2 0	240	50	33.3
GIRLS BELOW THE MEDIAN HEIGHT.						
14	11 2 9	112.8	12 1 6	180.0	67.2	59.5
19	12 0 7	130.0	13 0 15	180.0	50.0	38.5
20	11 1 19	76.0	12 1 2	112.0	36.0	46.3
21	9 7 24	95.0	10 6 27	130.0	35.0	36.8
53	13 3 18	128.0	14 5 2	160.0	32.0	25.0
GIRLS ABOVE THE MEDIAN HEIGHT.						
36	10 2 7	96	11 8 11	159.2	63.2	65.8
46	6 5 17	70	7 5 17	108.0	38.0	54.2
46	11 4 8	142	12 4 0	190.0	48.0	33.8
86	13 10 14	154	10 5 0	190.0	36.0	23.4
86	14 10 5	190	15 10 2	234.0	44.0	23.1

The greatest yearly gain in height for these boys below the median is approximately 10 centimeters per year, and as a rule these gains are made after 14 years of age; for those above the median the gain is approximately the same, but occurs at 14 or earlier. The greatest gain in height for girls below the median is from 9 to 11 centimeters, and occurs after 12 years; for those above the median height it is from 10½ to 11 and occurs before 12 years of age.

The greatest gains in weight are after 12½ for the boys below the median and earlier for those above median height, as a rule. For the girls the greatest gains are after 13 for those below and before 13 for those above the median.

The greatest gains in lung capacity are after 14 as a rule for the boys below median height and before for those above median height. For girls there is little difference between those above and those below median height.

In an extensive study on physical growth, based on single measurements, Dr. H. P. Bowditch[1] calls attention to the asymmetrical nature of the trend of the growth curves and holds that large, tall children make their most rapid growth at an earlier age than the small ones, since the average and median values do not coincide. By using the same data, given by Bowditch, Dr. Franz Boas[2] applies supplementary statistical methods and concludes that Bowditch's conclusions are untenable. He says:

> The asymmetry is not accidental, for there will be as many children on a stage of development corresponding to that of their age plus a certain length of time as corresponding to that of their age minus a certain length of time.

[1] Bowditch, H. P. Growth of children. Tenth an. rep. Mass. Bd. Health.

[2] Boas, F. On Townsend Porter's investigation of school children of St. Louis.

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In his several reports on the growth of St. Louis children, Dr. William T. Porter[1] finds the same asymmetrical trends noted by Bowditch and repeatedly calls attention to the difference between the mean and average. Boas very plainly states: "I can not acknowledge that the conclusions reached regarding the growth of tall and short children are correct." He finds the constant occurring differences and their regular distribution between the mean and the average furnish the best proof that the curves under consideration are not probability curves. He believes, if this is the case, neither the average, nor the mean, nor the most frequent value represents the type of the age to which the curve refers. This can be determined only by detailed examination of the causes of the asymmetries.

To summarize briefly the differences in the two points of view Boas maintains that—

> When we consider children of a certain age, we may say that they will not all be on the same stage of development. Some will have reached a point just corresponding to their age, while others will be a little behind, and still others in advance of their age. Consequently the values of their measurements will not exactly correspond to those of their age. We may assume that the difference between their stage of development and that belonging to their exact age is due to accidental causes; so that just as many will be less developed as further developed than the average child of a particular age. Or there will be as many children on a stage of development corresponding to that of their age plus a certain length of time as corresponding to that of their age minus a certain length of time.—*Science, n. s. 1., 227.*

Porter's assumptions are based on Bowditch's data as well as his own, and he maintains that—

> The type of a certain deviation from the mean of an age will show the same degree of deviation from the mean at any subsequent age; for example, a type boy in the 75 percentile grade at age 6 will throughout his growth be heavier than 75 per cent of boys of his own age.—*Transactions of the Academy of Science of St. Louis, 4, p. 293.*

Boas objects to this assumption and holds that the average children do not hold their percentile rank. The individual growth curves included in the present investigation should go a long way toward solving this much-disputed question. It will be shown that both writers are partially correct, but neither could see the significance of his conclusion from the data at hand.

8. INDIVIDUAL GROWTH CURVES.

(a) HEIGHT AND WEIGHT.

The series of 28 charts show the individual growth curves in height, weight, and lung capacity for 170 individuals, giving in all 510 individual growth curves for various periods between 3 years 9 months and 18 years 6 months.

In carrying out a comparison graphically among forms so dissimilar in absolute size as those of height, body weight, and lung capacity,

[1] Porter, W. T. The growth of St. Louis children.

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it was thought best to use the following units. In the height and weight curves the same base line division of 20 millimeters equals 12 months in age, while for the ordinates or vertical lines 40 millimeters equal 20 centimeters in height and 10 millimeters represent 20 pounds in weight. In the lung capacity charts a base line division of 15 milli-

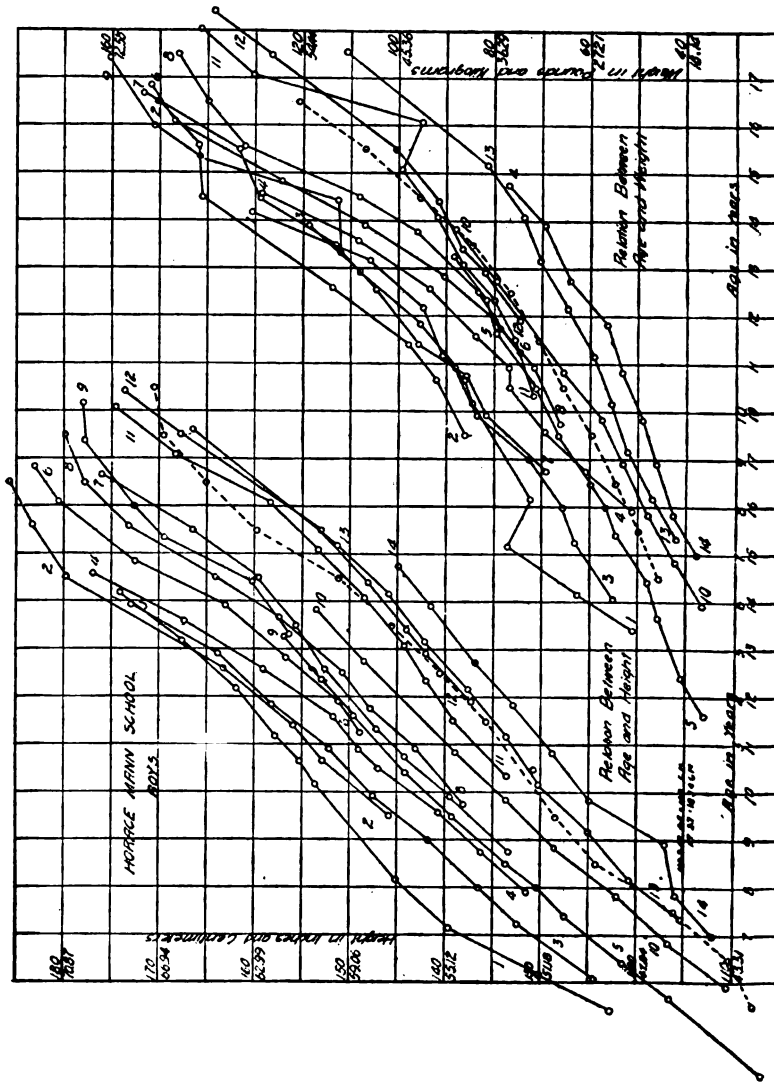

FIG. 1.—(Chart 1a) Height and weight curves for Horace Mann School boys.

meters is used for 12 months in age, and in the vertical or ordinates 10 millimeters represent 20 cubic inches in lung capacity. The original charts have been reduced in size and the millimeter lines taken out. The black lines represent distances of 20 millimeters on the height and weight charts and 15 and 10 millimeters on the lung capacity charts.

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The same Arabic numerals refer to the same individuals, respectively, for each of the 15 groups for all curves, for all health notes, and for all indices. The circles give the time of measurement; the ordinates represent the measurements accurately to within 0.4 of a centimeter or less, and the abscissæ the exact age within 14 days or less.

It is at once apparent that the direction of the curves shows the absolute increase, decrease, or uniformity of the increment of growth. A straight line of uniform pitch indicates an absolute increment for the same individual; therefore, in general, the degree of pitch of the line (curve) shows the relative amounts of increase of absolute increments for the same individual, and a change of the direction of a line at any circle (or point of measurement) indicates a decrease in the absolute increment if the line turns toward the horizontal, and an increase if it turns toward the vertical. The charts, therefore, like most growth curves, show graphically the absolute increments and not the percentage of increase over the initial measurements from period to period. The relative gain or per cent of increase or decrease may be obtaind from the preceding tables (4, 5, and 13–22) for comparison, if desired.

It should be noted that no attempt to select the individuals was made in the charts except to include a few that are tall and a few that are short in order that the height curves may be followed individually from measurement to measurement. The wide distribution of individuals from tallest to shortest may be noticed as a general characteristic of this group; there is a range of 35 centimeters in height between the tallest boy and the shortest boy at 14½ years. Since this wide range of distribution is uniformly present for all ages, a comparison of the growth of some very tall children with some short ones may be nicely observed when compared with the dotted curve which is "Boas's normal curve" based on the measurements of 45,151 boys for *one* measurement each.

A study of these height curves reveals at once that each boy holds approximately his relative position in the group for the periods included (Nos. 1, 8, and 9 are the only curves that cross, and in only one of these instances are two curves intersected), and on a percentile basis each would retain approximately his percentile grade; and that the relative shifting of the beginning of the adolescent acceleration from 12½ years for the tallest boy (No. 2) to 16 years for the shortest boy (No. 11) is a notable characteristic which has been referred to from time to time in the preceding pages. Occasionally there is a slight retardation before pubescent acceleration begins, and this, together with the shifting of the period, causes the curves to approximate in appearance a series of concentric arcs of varying sizes where a chronological point in the lower or outer arcs is reached later than in inner or upper arcs. If No. 1 curve, which is

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abnormal, is eliminated, there may be observed a fanning out of the curves from childhood to adolescence. When the individual growth curves in height for all the boys from both schools are compared, it will be noted that there is frequently an individual fluctuation in growth from 6 to 8 years of age, depending on the size of the boy, and

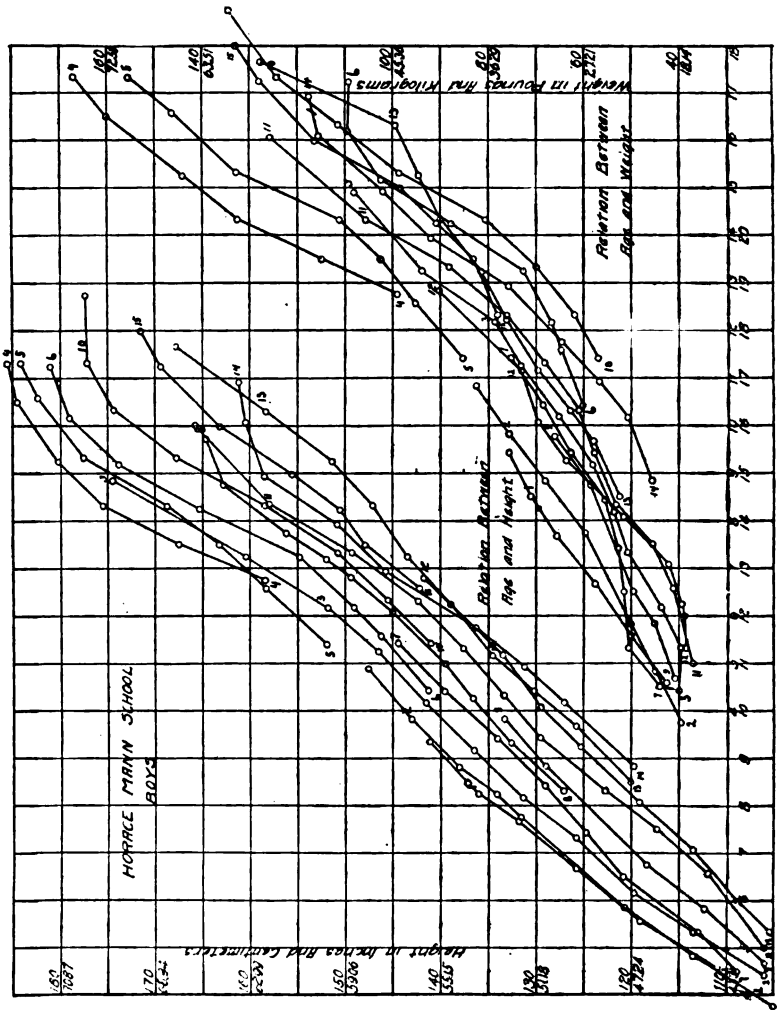
HORACE MANN SCHOOL BOYS
Relation Between Age and Weight
Relation Between Age and Height
Weight in Pounds and Kilograms
Height in Inches and Centimeters

FIG. 2.—(Chart IIa) Height and weight curves for Horace Mann School boys.

there is a remarkable uniformity in the increase of increment after 6 or 8 years to the period of pubescent acceleration, with a slight decrease just before the adolescent acceleration.

The girls' curves illustrate at a glance smaller stature than that of the boys before 11 years and after 14. There is also here a uniformity in regard to relative stature for each individual throughout the periods included, and an earlier pubescent acceleration in the cases where

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there is an increase during this period. The general trend of these curves shows slight decrease in increments from 7 years to the accelerated period, which like that of the boys, varies in occurrence with the initial height; the period of rapid growth is earlier for the taller girls; the shorter girls, like the shorter boys, reach their maturity in growth at an older age. In Chart IVa (p. 42), for example, the

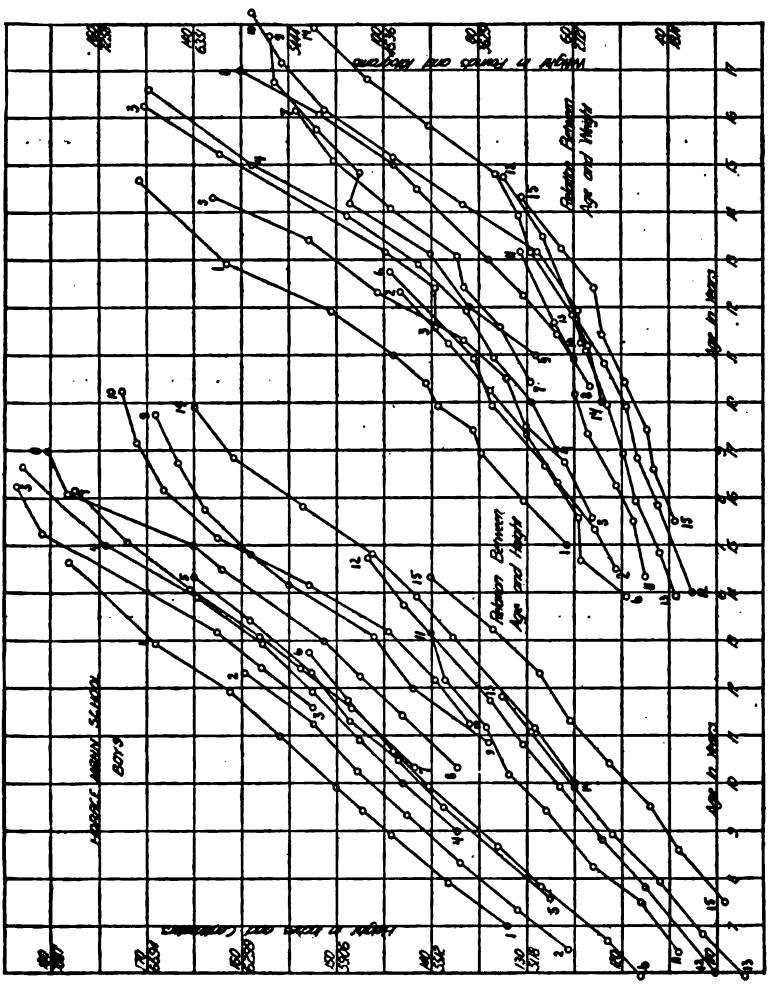

FIG. 3.—(Chart IIIa) Height and weight curves for Horace Mann School boys.

tallest girl of the group attained her maximum height at 14½ years of age and the shortest at 17 years and 3 months.

When the curves for the girls are extended to the earlier periods of childhood, there is a suggestion of change or variability in the increments from 5 to 7 years of age, with a small range of differences similar to the boys during these earlier years. There is a slight drop in the curves, as a rule, between the ages of 7 and 11 years, aside from

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the curves No. 1 and No. 9 of Chart Va, for example, which show no retardation or acceleration during the prepubescent and pubescent periods; the drop is more noticeable with girls than with boys. A period of marked retardation before adolescence is usually followed by a period of rapid acceleration during adolescence. If the increment of growth before adolescence is relatively uniform, this uniformity tends

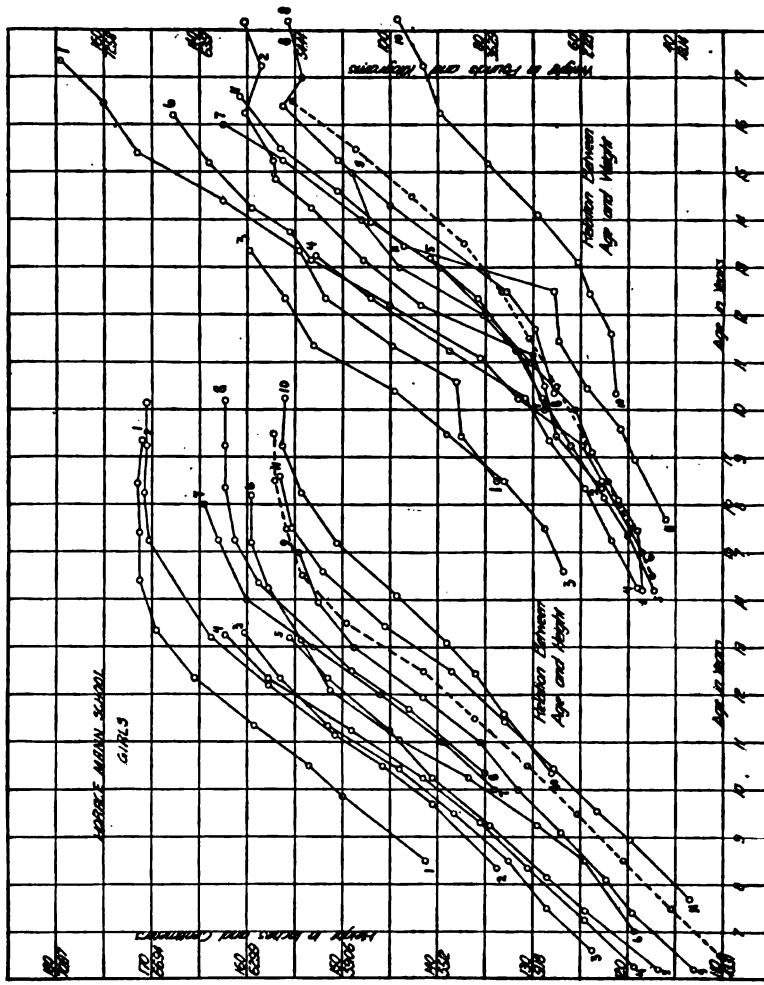

FIG. 4.—(Chart IVa) Height and weight curves for Horace Mann School girls.

to persist throughout adolescence; and, as may be noted with No. 1 in Chart Va (p. 43) and No. 1 in Chart Ia (boys) (p. 38), when there is unusually rapid growth for the individual from 7 years to the beginning of adolescence, there is a decrease during adolescence, i. e., a reversion of the common rhythmic order.

The Francis W. Parker boys, when compared with the Horace Mann boys, show a closer range of distribution during adolescence;

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they are inferior, on the average, in stature, and show more individual fluctuations from measurement to measurement, which may be due, in some instances, to slight variations of the conditions under which the measurements were made, such as the time of day, the reading of the stadiometer, or rhythms occurring during certain times of the month or year, since the measurements were taken at

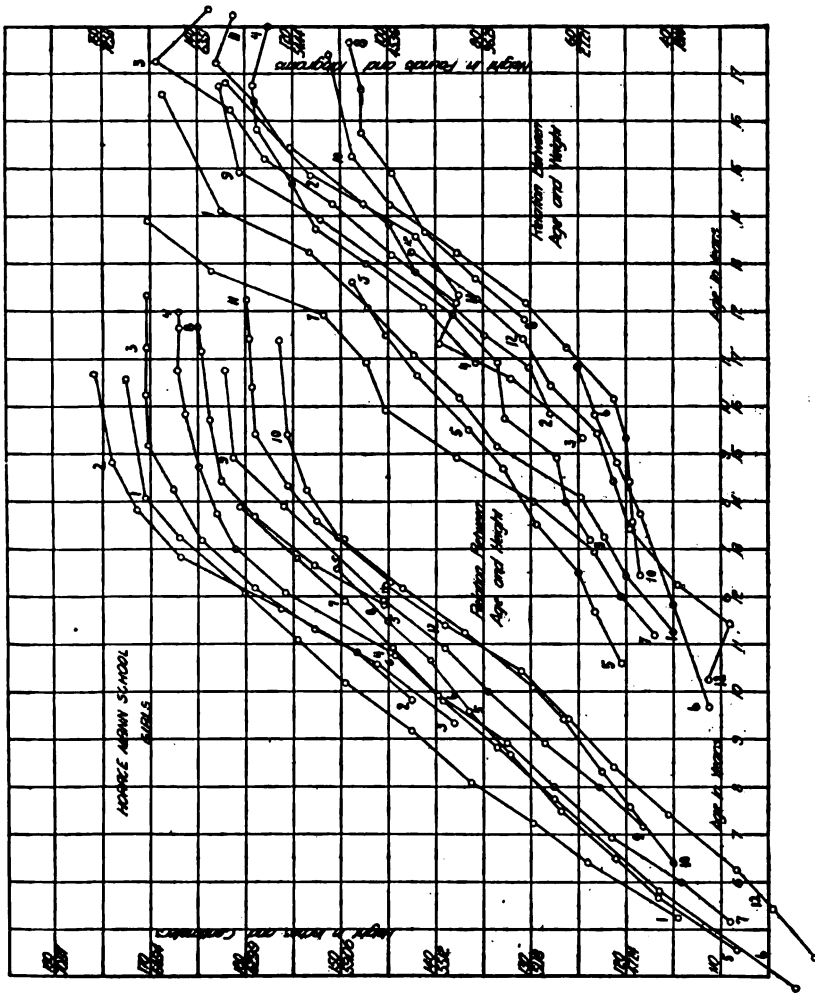

FIG. 5.—(Chart Va) Height and weight curves for Horace Mann School girls.

such short intervals that the variation of a few centimeters would be very apparent in the curves as plotted.

The 22 individuals in Charts XIIIa and XIVa are from the University of Chicago schools and from homes similar to those of the Francis W. Parker School, but they form part of a much larger body of students. In Chart XIIIa the individuals are taken at random, but in Chart XIVa an effort was made to find cases of arrested growth. The growth

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curves in height for both groups, like all the Horace Mann School children, show fewer individual fluctuations than those of the Parker School and, aside from No. 5 (Chart XIVa), there is a very close parallelism between the varying heights and the varying weights of the different individuals, i. e., the taller children are the heavier.

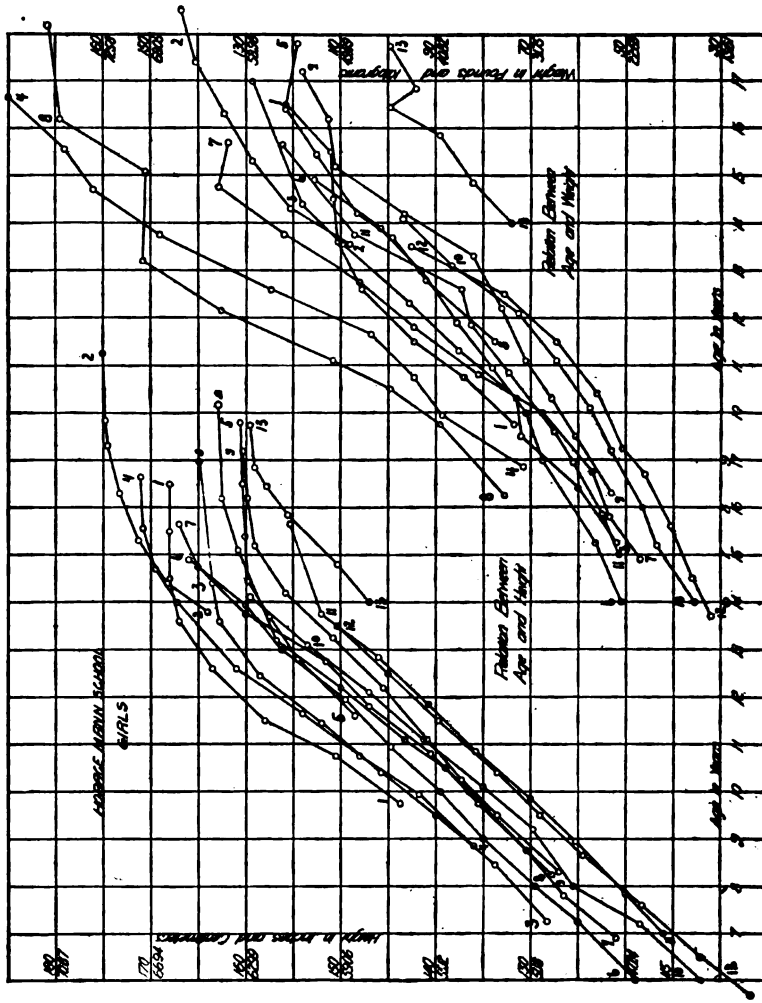

FIG. 6.—(Chart VIa) Height and weight curves for Horace Mann School girls.

No. 1 (Chart XIVa) is the tallest girl included in this study and her weight curve deviates from the general tendency in that its form is similar to the height curve. The per cent of increase in height increments over the initial heights for a given chronological age from 6 to 18 is so comparatively uniform for each individual that the growth curves may enable one, in the future, to prophesy with considerable accuracy how tall a child of normal growth will be at any subsequent

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age within the interim, providing his or her relation to a given median, or norm, be known.

The trend of the height curve, aside from the period just previous to the accelerated pubescent growth, tends toward convexity. If there is unusually rapid growth for the individual from 7 years to

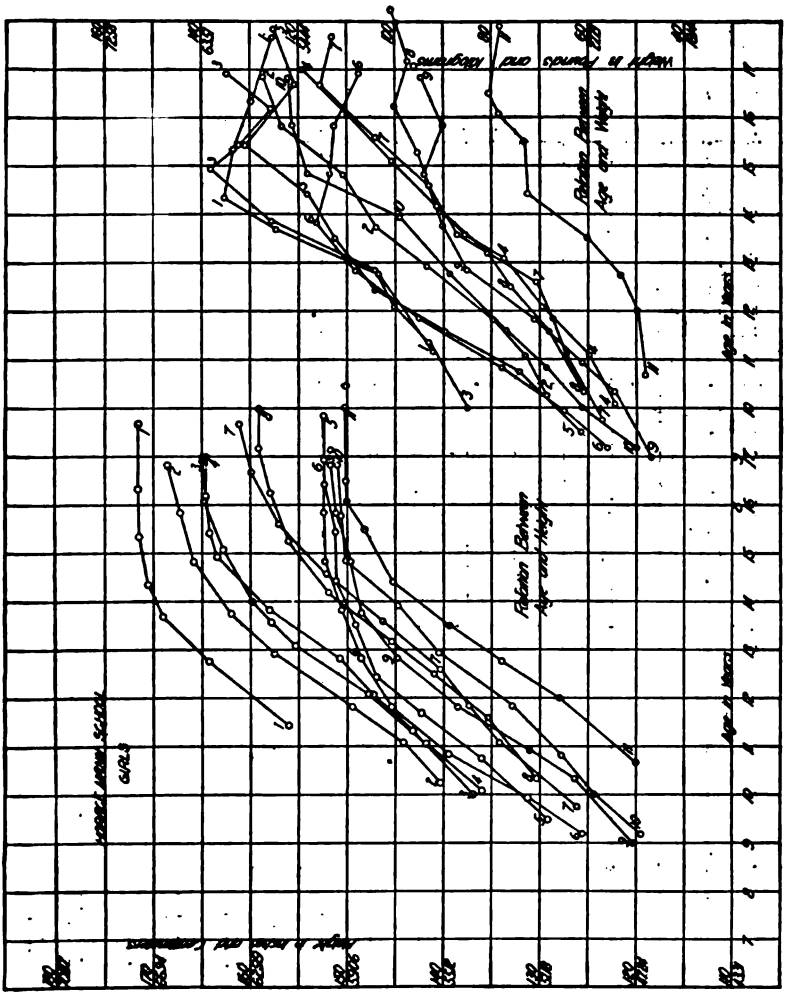

FIG. 7.—(Chart VIIa) Height and weight curves for Horace Mann School girls.

the beginning of adolescence, there is a decrease during adolescence, and there is frequently a reversion of the common rhythmic order.

Of the 170 boys and girls whose height curves are plotted for the preadolescent and adolescent ages, a few show a regular uniform rate of increase at pubescence, a much larger number show an accelerated rate, and fewer show a decrease in gain.

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The cases of marked arrest, or retardation, in growth in height with this group of children occur usually during the early adolescent period and persist through the period.

WEIGHT.

The individual weight curves have certain characteristics which are interestingly significant when compared with the height curves.

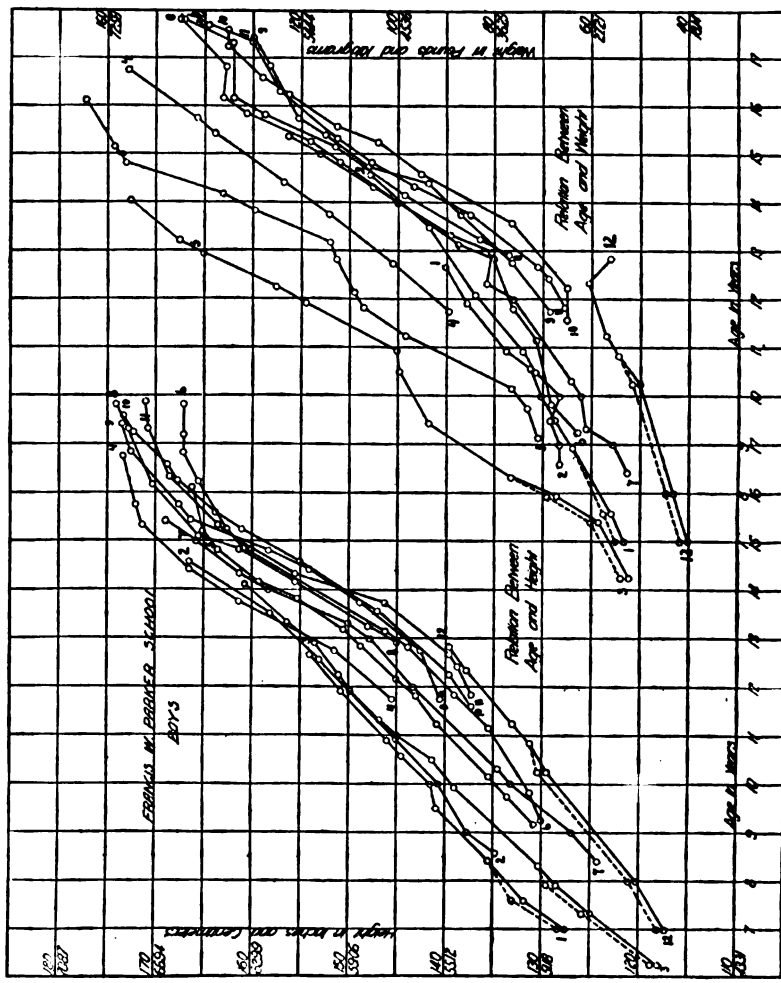

FIG. 8.—(Chart VIIIa) Height and weight curves for Francis W. Parker School boys.

With the exception of No. 9 (Chart Ia), who is heavier than the others for his height, the boys' heights and weights are as a rule relatively proportionate to each other. The five boys below median height (Nos. 10, 11, 12, 13, and 14 of the first chart) are also the five lightest, with the exception of No. 10, whose nutrition is poor. The boys hold the same relative positions in the series in reference to both height and weight.

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Though there are more individual fluctuations in growth in weight than in height, there is also a wide range of individual differences, as shown by the fact that No. 2 of the first group at 14 years of age is 60½ pounds heavier than No. 14. The striking differences between the two series of curves are: The weight curves tend toward concavity and the height curves toward concavity just before the pubescent

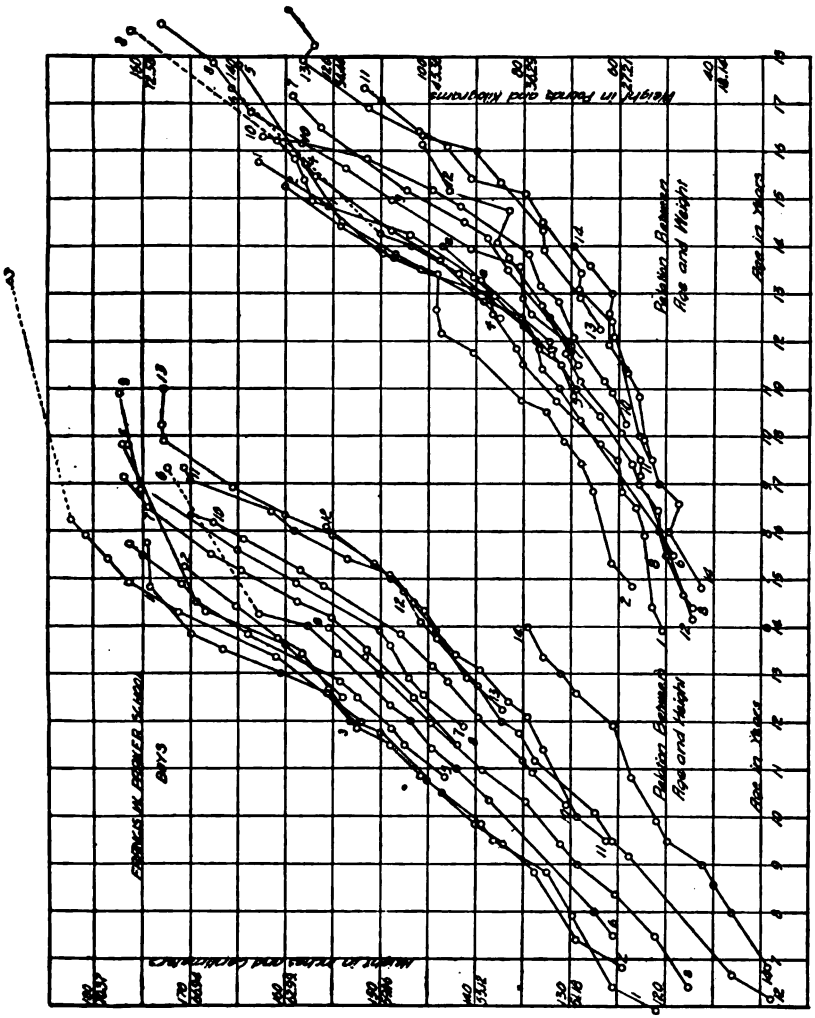

Fig. 9.—(Chart IXa) Height and weight curves for Francis W. Parker School boys.

acceleration, and then both toward convexity; the height curves never fall below the previous measurement, except in a few instances for a millimeter or two, and the weight may go above or drop below the previous measurement. In several instances boys lost in weight, and these losses divert the curves from their relative positions within the group, which may later be regained.

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The curves of weight show to a marked degree a decrease in relative increment from 6 to 11 or 13 years of age, the latter limit varying with the relative height and weight of the individual. After this there is a marked acceleration. The uniformity of increase in height and weight increments certainly tends, on the whole, to call attention to the value of the vigilant watching and remedial exercises on the part of the examiners in this school, and at the same time gives con-

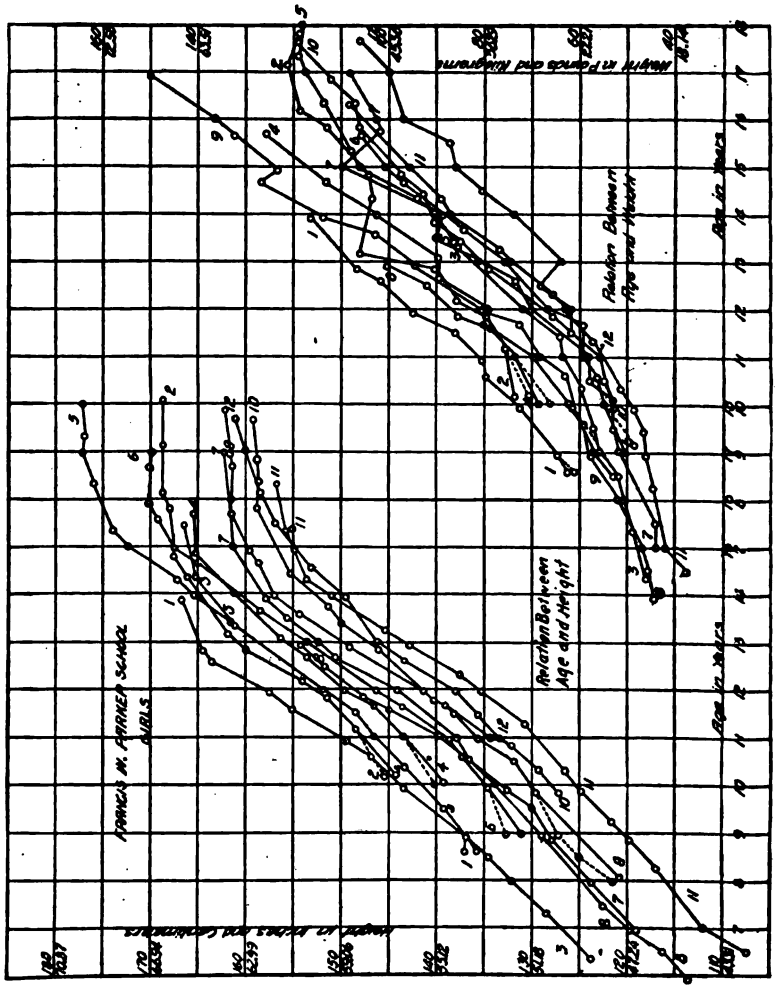

FIG. 10.—(Chart Xa.) Height and weight curves for Francis W. Parker School girls.

crete evidence of the great value of physical examinations and medical inspection for growing children.

Girls are relatively heavier than the boys, and the weight curves show less tendency toward concavity, with slightly more individual fluctuations. There are no cases of a loss of weight previous to 16 years of age; in many instances (Chart IVa, for example) the taller

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girls are as a rule heavier. In a general way each individual retains her relative position in regard to height. In Group V there are three cases of loss in weight after 17 years of age and two previous to this age. No. 7 diverts from this tendency of her group, being the heaviest after 8 years.

There is apparent confusion in the complexity of weight curves for Group VIIa, but if the curves of those whose growth in height was

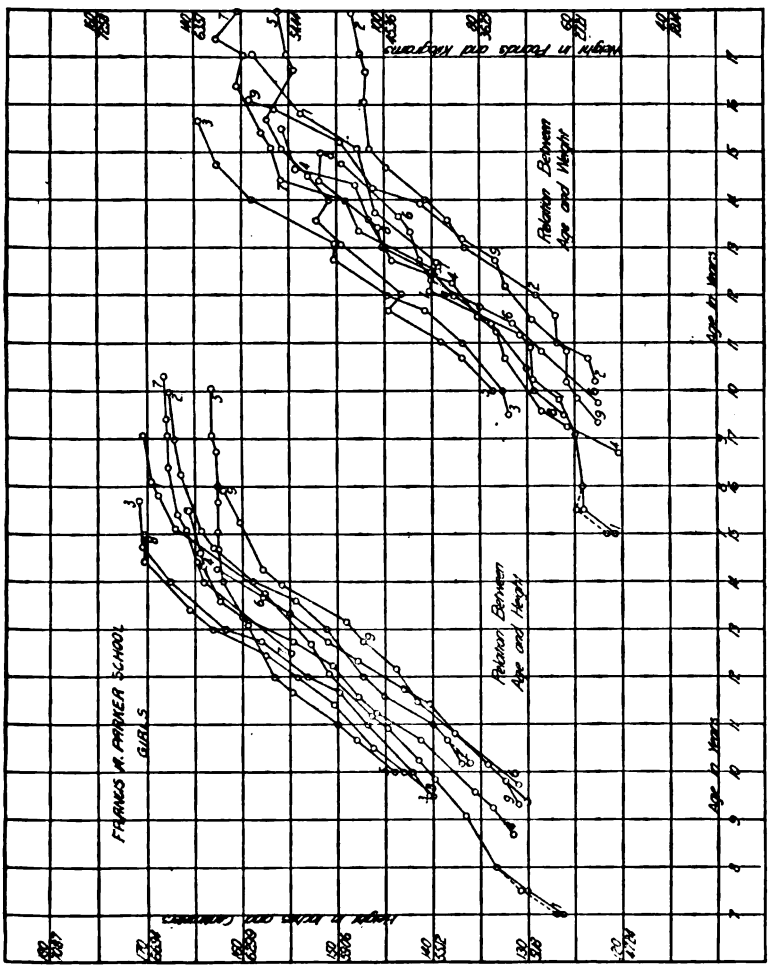

FIG. 11.—(Chart XIa) Height and weight curves for Francis W. Parker School girls.

arrested are eliminated, and allowance is made for a decrease for the last year of the period in this chart, the remaining curves tend to follow those of the other groups. The continued retardation in the curves in height is paralleled by a similar period of arrest in weight. The instability in growth in weight is represented by a mass of intersecting curves in Chart XIa. No. 5 loses in weight in a manner similar to the retardation of growth in height, but the loss in weight does

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not occur until a year and a half later than the loss of growth in height. In general, an arrest of growth in height after 15 is also accompanied in this group by a cessation of growth in weight, which is unusual. Some other unusual relationships between height and weight are illustrated in Chart XIIa; these are particularly evident in the case of No. 1, who, while fairly tall, is symmetrical and fat, with a marked deviation from any of the previous weight curves, and

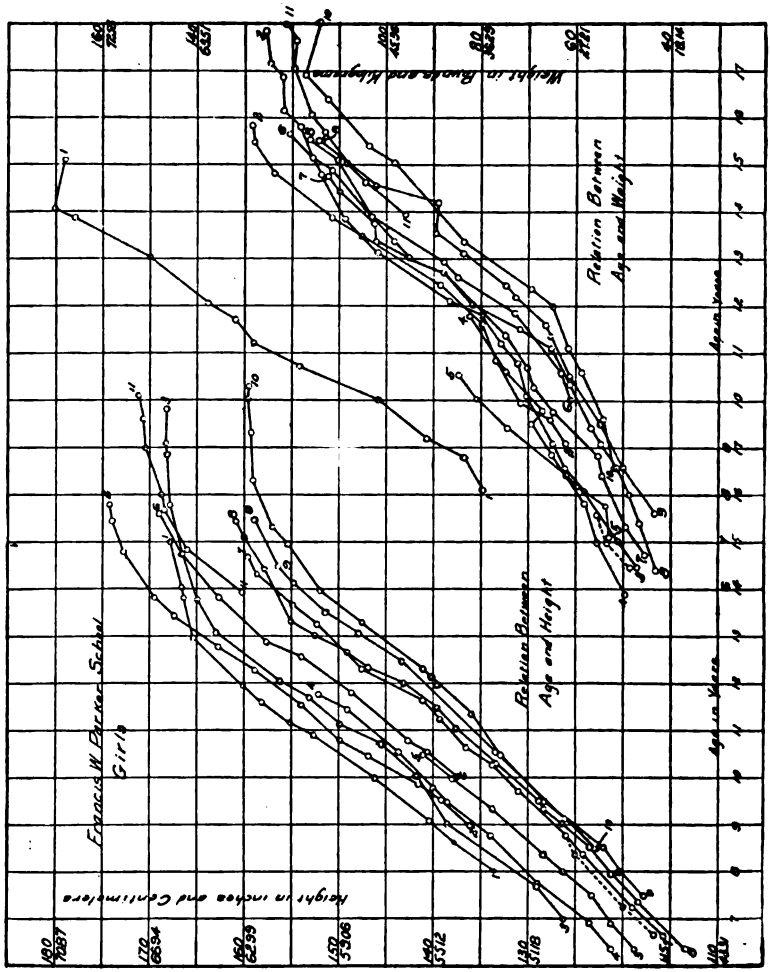

FIG. 12.—(Chart XIIa) Height and weight curves for Francis W. Parker School girls.

No. 5, who is also overweight, and illustrates the same type of deviation. Most of the other girls are under weight, but show no unusual tendencies. The weight curves of the very stout girls in this group are strikingly similar to those in the other charts.

The trend of the weight curves in contrast from the height curves is toward concavity, with more marked concavity (or loss of increments of gain between 8 and 13 years) for boys than for girls.

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The weight curves are characterized by a period of rapid acceleration during adolescence, except in cases of marked arrest, which are usually accompanied by marked arrest in growth in height. There are very few curves of a uniform increment of growth during adolescence.

Marked arrests of growth in weight, like those of height, occur during the adolescent period.

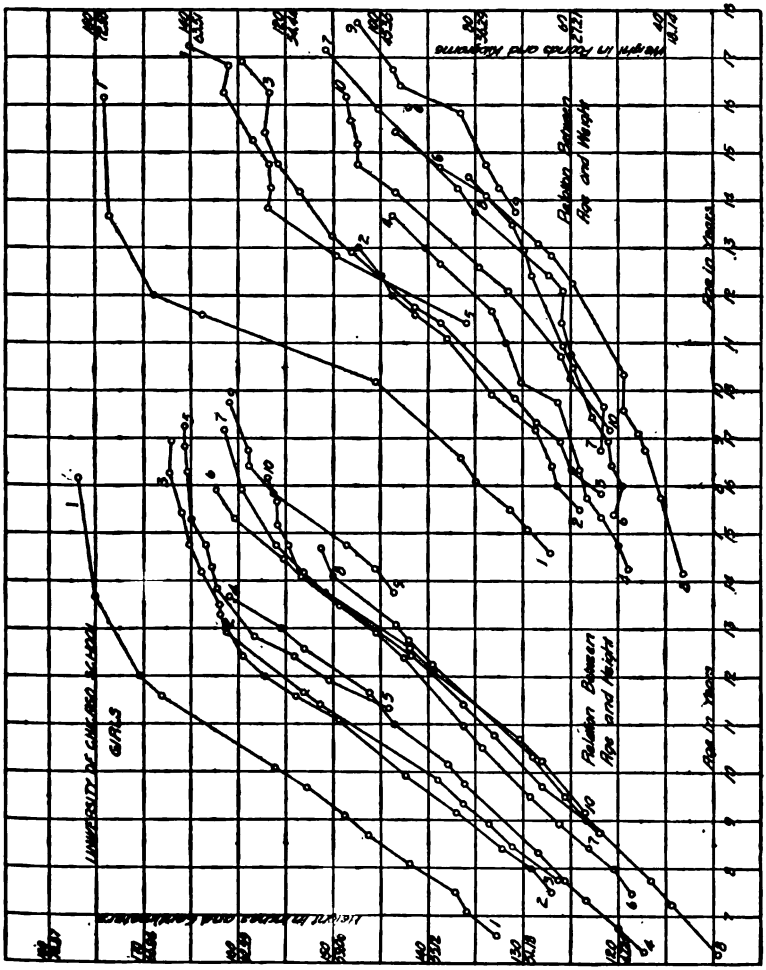

FIG. 13.—(Chart XIIIa) Height and weight curves for University of Chicago Elementary and High-school girls.

The heavier boys and girls are the taller boys and girls, and there is a close parallelism between the relative rank in height of a boy or girl and his or her relative weight within a group.

The boys and girls below median height have their periods of rapid pubescent acceleration in weight later than those above, since the same general principles of physiological age hold for weight as for height.

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(*b*) LUNG CAPACITY.

It will be noted in the boys' lung capacity curves that No. 9, in the first chart, who is relatively heavier than the others for his height, also has more lung capacity. This is significant, since the other boys hold approximately their relative places for height, weight, and lung capacity. For example, in the third group (Chart IIIa) there are a

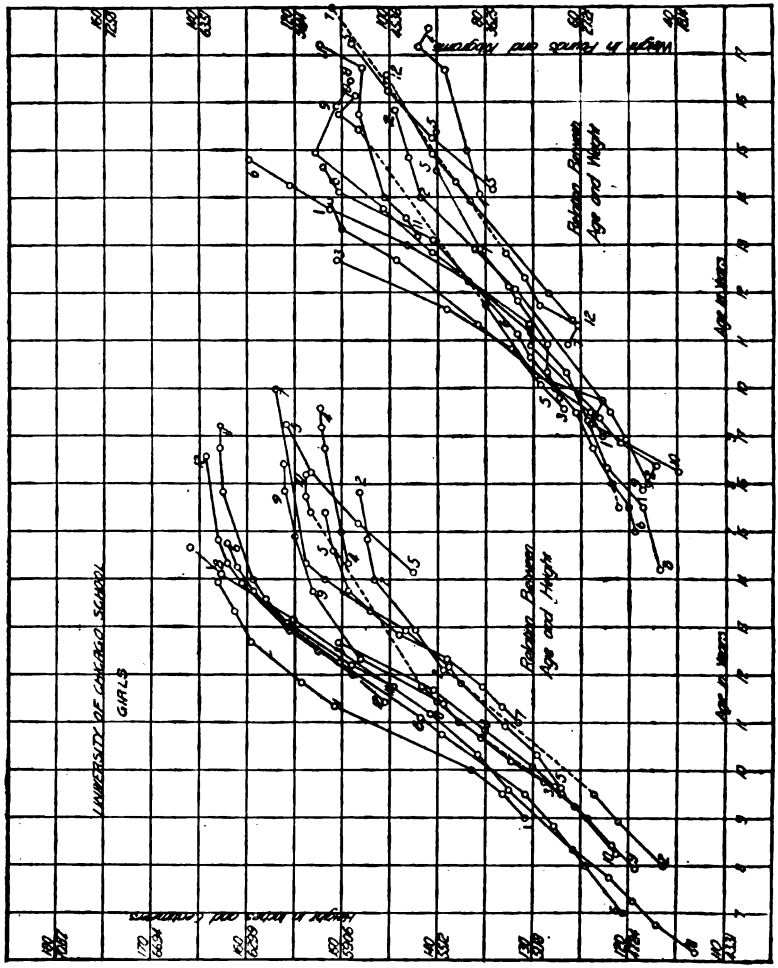

FIG. 14.—(Chart XIVa) Height and weight curves for University of Chicago Elementary and High-school girls.

number of short, light boys in the group, and, as would be expected, there are a number of boys with inferior lung capacity. The fluctuations in growth in height in the case of No. 11 are also apparent in the lung-capacity development. Like weight, lung capacity shows occasional losses, and the curves tend toward concavity, which shows the increments increase less from 9 to 13 than during any other period for boys. The rapid gains and losses at the beginning may

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FIG. 16.—(Chart IIb) Lung-capacity curves for Horace Mann School boys.

FIG. 15.—(Chart IIb) Lung-capacity curves for Horace Mann School boys.

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be due in several instances to the new factor of voluntary control required for this measurement and the mental adjustments necessary to meet such a test. These curves, like the others, show comparatively few cases of crossing when the large numbers of possibilities are considered. The range of differences is not so marked as in height the curves are more closely grouped than those of weight. There is a close massing of the curves for the Francis W. Parker boys.

Among the girls some striking similarities to growth in height and weight may be noted in regard to the normal direction of lung capacity curves. For example, in Chart Va, No. 1 shows little or no acceleration at adolescence; the same is true for No. 9 in height and lung capacity; No. 5's curves are very similar, as also are those of Nos. 4 and 10. It is apparent the girls' lung capacity curves show less concavity or decrease in absolute increment between 9 and 14 than the boys. This may be explained on the basis that the girls are becoming superior to the boys in height and weight during this period, only to drop back later in height, weight, and lung capacity. The lung capacity curves of the girls differ in their general trend from those of the boys and follow the same tendency as the weight curves of the girls.

In Chart XIVb the same arrests in lung capacity are illustrated as in height and weight. This is particularly true of Nos. 4, 7, and 11, and also of No. 12, who is very light, but tall, and has an exceptionally small lung capacity. The lung capacity curves, like those of height and weight, are irregular, and are indicative of instability of uniform increase in development. The long interim between measurements is responsible in some instances for the crossing. In Chart VIIb there is a peculiar massing of curves, due to the arrest of Nos. 5, 6, 8, 10, and 11. No. 1's position may be due to some after effect of pneumonia. The close relation between weight and lung capacity is again illustrated in No. 1 of Chart XIIb, who is extraordinarily stout, with large lung capacity; No. 3 shows the same retardation in lung capacity as in height and weight.

While there are several cases of parallelism in relative positions in height, weight, and lung capacity, there are some interesting exceptions. In Chart IVb, Nos. 2, 6, and 8 are underweight and have less lung capacity than their heights would seem to justify. No. 8 has a poor health record, and the other cases would help to augment the suggestion previously made that there is a closer relationship between lung capacity and weight than with height. This is contrary to popular opinion, and will be discussed more in detail later. The girls are inferior to the boys in lung capacity in the later adolescent period, which may be explained to some extent on the basis of hygienic conditions and dress.

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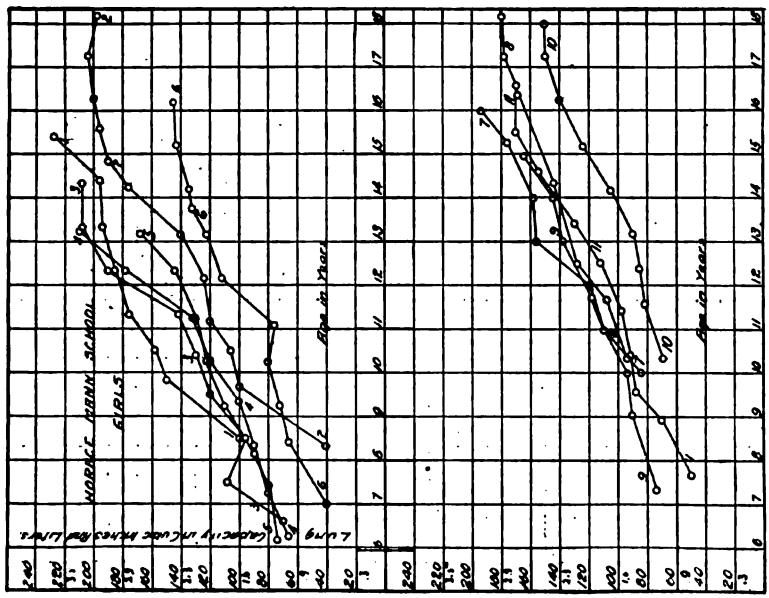

FIG. 18.—(Chart IVb) Lung-capacity curves for Horace Mann School girls.

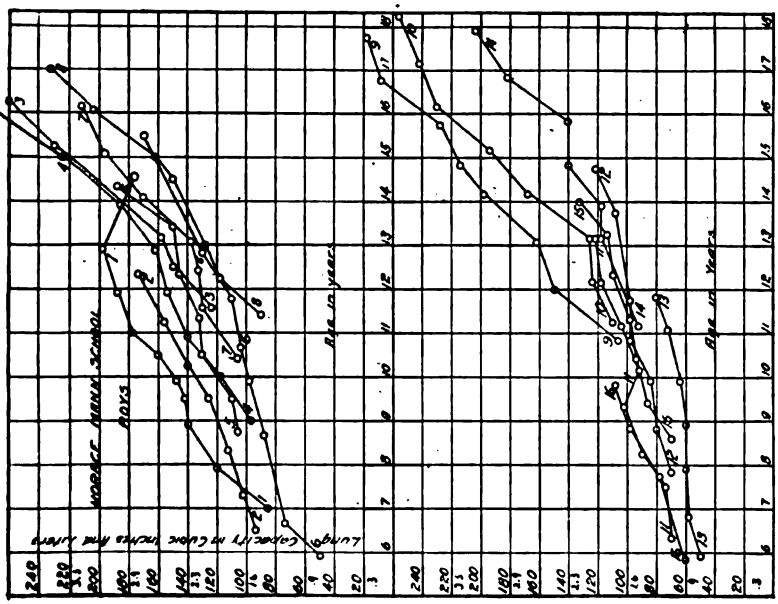

FIG. 17.—(Chart IIIb) Lung-capacity curves for Horace Mann School boys.

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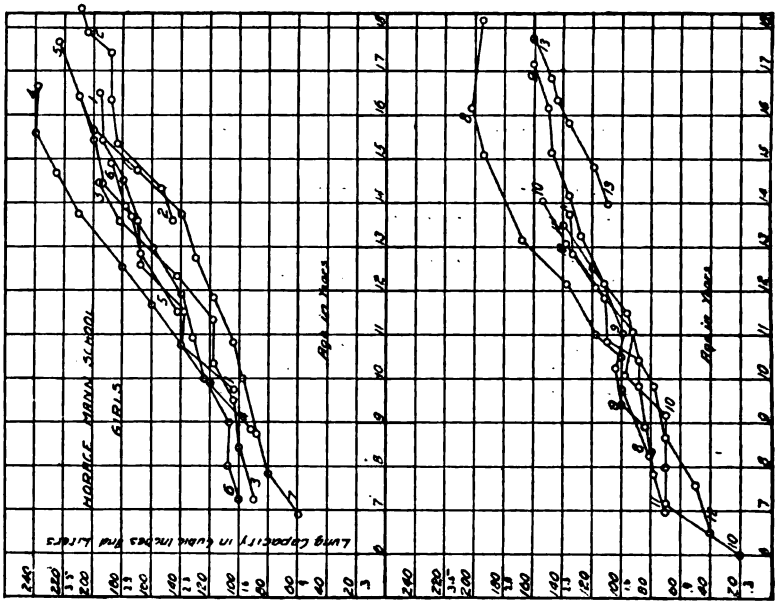

FIG. 20.—(Chart VIb) Lung-capacity curves for Horace Mann School girls.

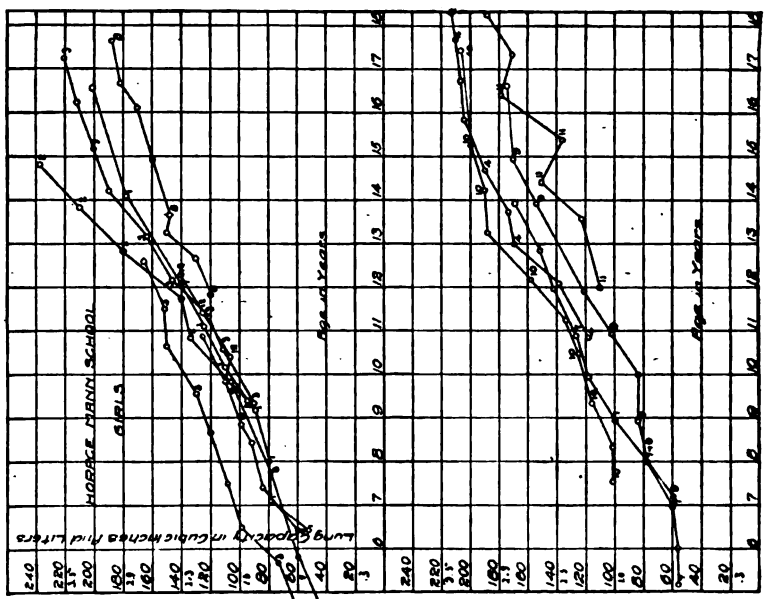

FIG. 19.—(Chart Vb) Lung-capacity curves for Horace Mann School girls.

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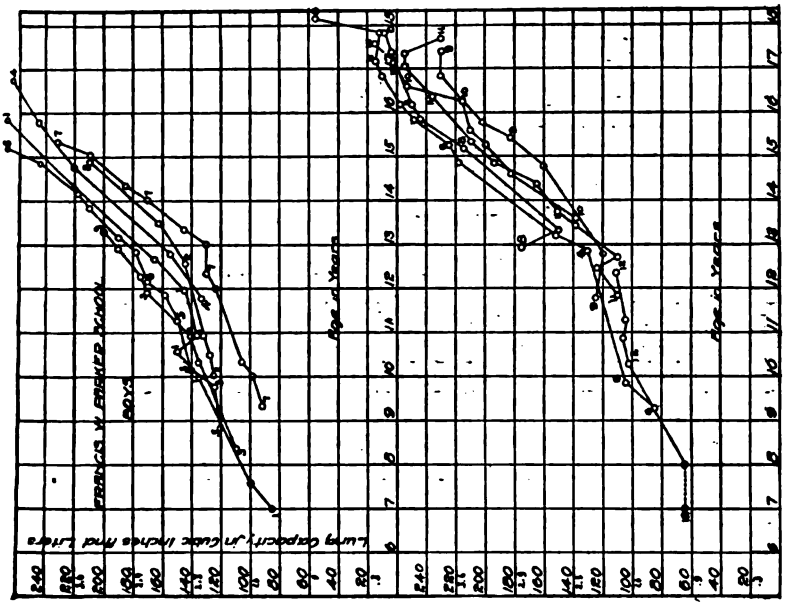

FIG. 22.—(Chart VIIIb) Lung-capacity curves for Francis W. Parker School boys.

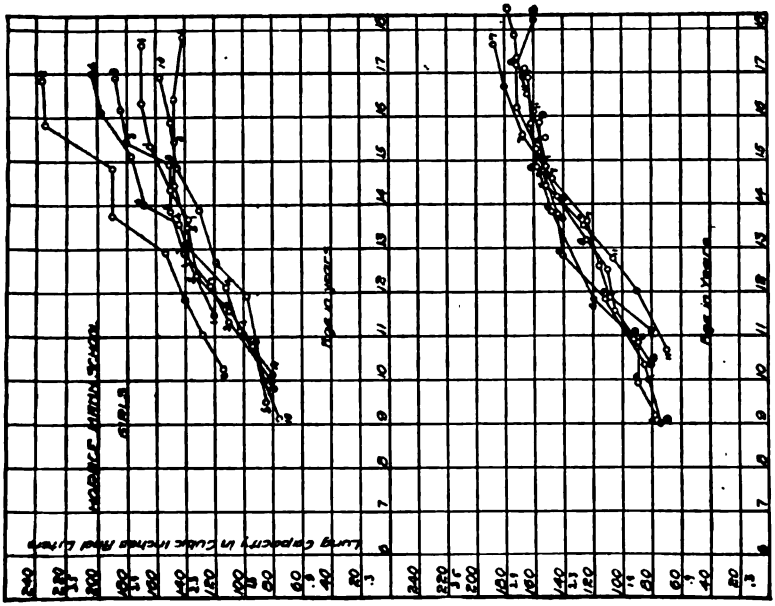

FIG. 21.—(Chart VIIb) Lung-capacity curves for Horace Mann School girls.

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The boys have greater lung capacity than the girls at all periods except between 13 and 14 years.

The annual increase in lung capacity is slightly less regular than that of weight, and the curves tend toward the same concave form.

The concavity of the lung-capacity curves, like those of weight, is more marked with boys than girls.

Marked arrests in height and weight are uniformly accompanied by arrest in growth of lung capacity.

There are a few cases of uniform increase in increments of growth in lung capacity during adolescence.

The boys and girls of greatest lung capacity are almost invariably those of greatest height and weight, and each frequently maintains his or her relative position within the group.

The boys and girls above and below median height differ in their periods of accelerated growth in lung capacity in a manner similar to the differences in height and weight.

9. THE RELATION OF PHYSICAL DEFECTS TO GROWTH.

It is not possible to discuss in detail in this bulletin the relations between physical defects, diseases, and nutrition, and growth in height, weight, and lung capacity, but the data, as far as available from the physicians' records, are included in order that comparisons and further conclusions may be made by those who wish to follow up these details. The aim here, as in all phases of this investigation, is to present the source material in such form that future inductive studies may be pursued by the writer or by others who wish to use the data.

In general, it may be stated that there are more marked relations between defects or diseases and growth in weight than in height, although the height is affected by conditions of long standing. For example, No. 1, Chart Ia, is the tallest individual in this group until 13 years of age, after which he gradually loses his relative position. Accelerated growth and resistance to disease go hand in hand. Adenoid growths materially affect physical development.

No. 10, Chart Ia, has the characteristic rhythms of growth in height and almost none in weight. The weight height and vital indices indicate subnormal nutrition. This is even more marked in the case of No. 14. A child may of course be short and light and still have normal growth in height and weight, providing the weight height relationship is normal.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts Ia and b.

(Those appearing in the group of 100 in Tables 21 and 22 are: 1=150; 3=147; 6=194; 7=196; 8=191 10=114; 11=170; 12=159; 13=111; 14=106.)

1. Health good at entrance; at 7 heart irregular and intermittent, cautioned with regard to exercise (note rapid growth in height and weight); anemic at 8 (note drop

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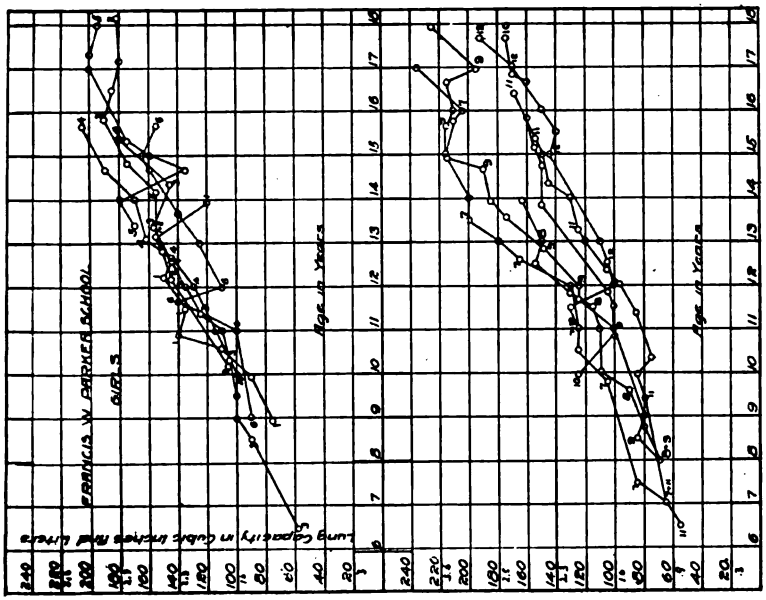

FIG. 24.—(Chart Xb) Lung capacity curves for Francis W. Parker School girls.

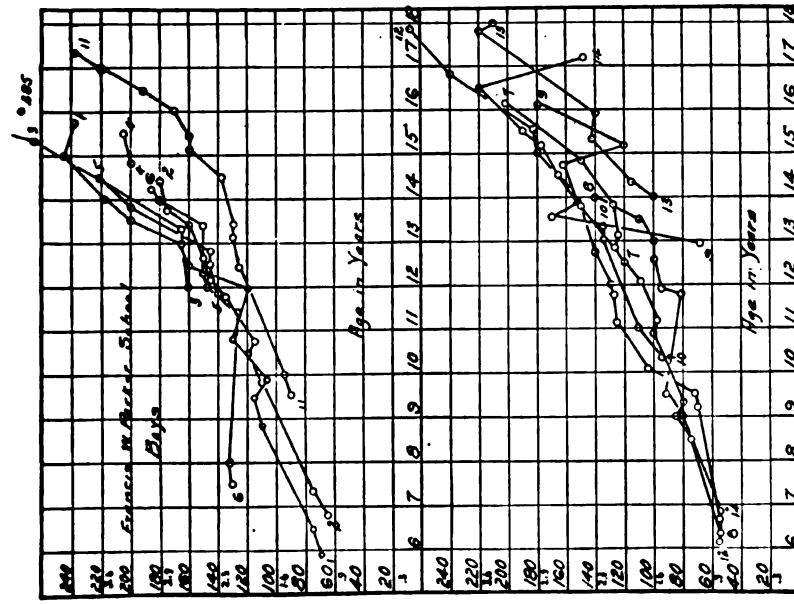

FIG. 23.—(Chart IXb) Lung capacity curves for Francis W. Parker School boys.

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in weight curve); at 10 heart regular and normal; at 11 special shoes for flat feet, also corrective exercises; at 14 injured knee. Parents American.

2. During childhood had whooping cough, mumps, measles, scarlet fever, and inflammatory rheumatism; at 10½ heart was irregular and continued to remain slightly irregular. Mother American, father English.

3. Health good at entrance; slight hereditary tendency to nervousness; had measles between 6 and 7 and chicken pox and bronchial pneumonia between 7 and 8; just previous to measurements of 9 years was recovering from measles; at 10 tonsils slightly enlarged, remaining so until 11.

4. Health excellent at entrance, but had had whooping cough and measles; rhinoda at 9½ which continued until 11½ years, after which condition improved.

5. Health good at entrance, but had had measles at 3; at 5½ posture poor;[1] at 7½ posture poor; heart slightly irregular at 8; astigmatism; corrective work begun in gymnasium at 8½; bronchial cold at last measurement.

6. Condition good at entrance, but tendency to colds and had had whooping cough; at 14 condition good; shoulders round at 16; improved at 17.

7. Excellent health, but had had scarlet fever, complicated with mastoid operation; measles, chicken pox; adenoids removed (note rise in weight curve); condition good during remainder of the time. Mother American, father German.

8. Weak throat at 11; condition good at 14. Mother American, father English.

9. Health good at entrance, but had had scarlet fever, whooping cough, and malaria; at 14½ had malaria, flat feet, enlarged tonsils, and follicular conjunctivitis; at 15½ improvement; at 18 good, under occulist's care. Parents American.

10. At entrance had had measles and bronchitis; tendency to bronchitis; fair health, tires easily; poor nutrition, slight pigeon breast at 7; health better at 8, also eyes, which were weak; at 14 left eye injured.

11. Health generally good; eyes weak between 13 and 14; gave trouble between 16 and 17 Parents American.

12. At entrance had had whooping cough, chicken pox, scarlet fever, mumps; restless; at 13 had operation for appendicitis; at 15½ condition good, followed by bicycle accident.

13. Excellent health, but has had measles; nervous child; shoulders round; foreskin long, bad habits at 8; condition fair, but restless at 10; at 11 condition fair; posture poor at 13.

14. Health good on entering, but had had whooping cough; tendency to tonsillitis; at 8 had tonsils and adenoids removed; at 9 well until severe attack of tonsillitis; at 10 condition good, but foreskin inflamed; also at 11 and 12; nervous temperament; high arched palate.

[The health notes for the other individuals may be found in Section III, Statistical Material, pp. 118–124.]

10. WEIGHT-HEIGHT AND VITAL INDICES.

One of the most useful and most practical indices of growth is the weight-height coefficient, which expresses the comparative solidity or robustness of the individual, and, therefore, other things being equal, his general nutrition. The following table gives the weight-height and also the vital indices of the pupils whose heights, weights, and lung capacities are expressed by the curves given in Charts Ia and Ib to XIV, inclusive. The weight-height index is obtained by dividing the weight (in kilograms) by the height (in centimeters); this gives the fraction of a kilogram which the individual possesses in weight for

[1] Whooping cough between 6 and 7 (slight depression in weight).

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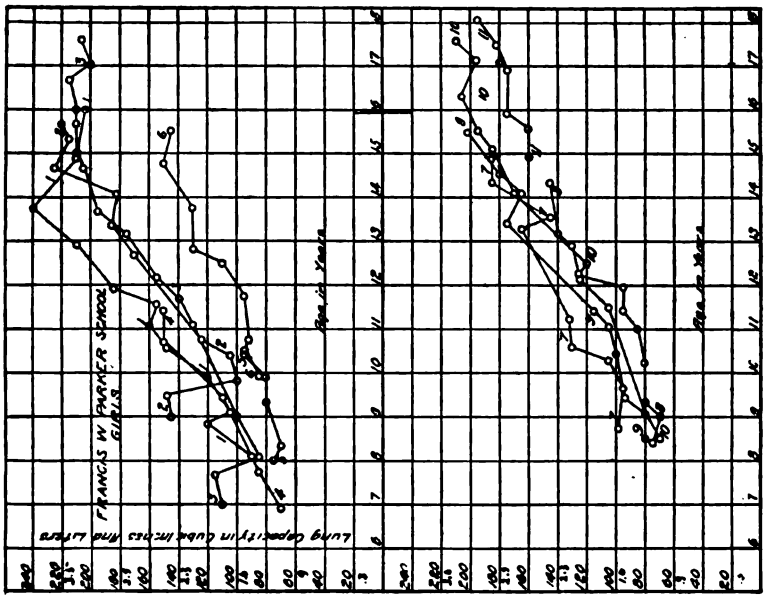

FIG. 26.—(Chart XIIb) Lung capacity curves for Francis W. Parker School girls.

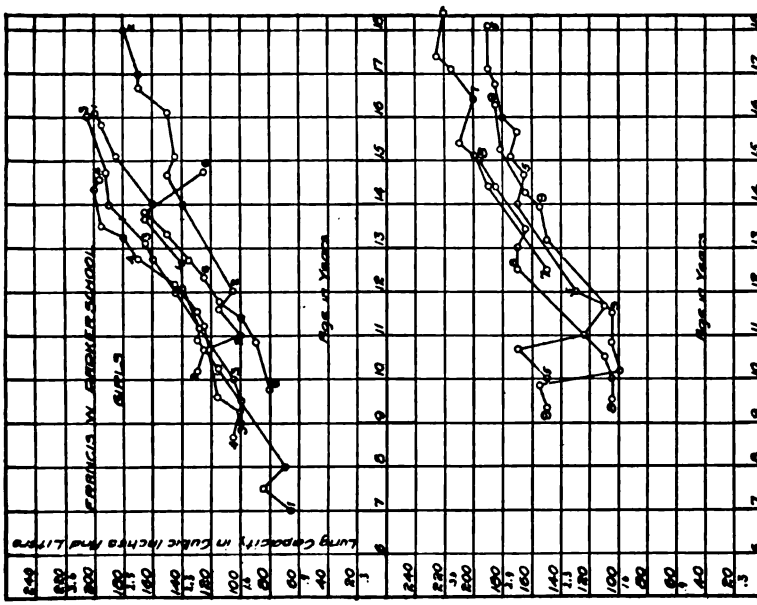

FIG. 25.—(Chart XIb) Lung capacity curves for Francis W. Parker School girls.

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each centimeter of height. The vital index is obtained by dividing the lung capacity (in liters) by the weight (in kilograms); this gives the fraction of a kiloliter which the individual possesses in lung capacity for each kilogram of weight.

The numbers at the top of this table refer to the successive measurements shown by the circles in Charts Ia and Ib and indicate the age in half-year periods; the numbers at the left in the vertical column refer to the individual curves as numbered on the charts. The upper row of figures in hundredths express in each case the weight-height index; the lower row in thousandths, the vital index.

The weight-height indices increase steadily in nearly all cases from 5½ to 18 years of age, which shows that weight increases more rapidly than height. The lowest ratio in this group of boys is 0.15 at 6 years and the highest 0.40 at 17½ years of age. There is little or no apparent difference, as a rule, between the tall boys and the short boys, except that the tall individuals have high indices early. This clearly substantiates the two important conclusions previously stated that the development in height and weight, as a rule, go hand in hand, and the second conclusion that any normal physiological change in the height or weight occurs earlier for tall children. For example, if we take the index 0.23 as representing a given physiological stage of development, it will be noted that the time shifts chronologically in a fairly uniform manner between 7 and 8 years of age with No. 1 to 14½ years for No. 14.

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TABLE 9.—*Weight-height and vital indices at ages 5½ to 17½ years for Charts Ia and Ib (pp. 38, 53)*[1].

[Figures in hundredths express weight-height index; those in thousandths the vital index.]

No. of curve.[2]	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	15½	16	16½	17	17½
1	0.19	0.21		0.25		0.23				0.25	0.25	0.26		0.27		0.29		0.34							
		.058		061						.065		.072		.070		.071		.066							
2									0.26		.27		0.28		0.32				0.36		0.35		0.37		
									.050		.055		.056		.057				.068		.076		.084		
3		.20			0.22	.22		0.23		.26		.26		.27		.30		.32							
					.055	.058		.060		.056		.062		.063		0.60		.060							
4						.17		.20	.22		.24	.23	.25		.28		0.29		.33						
						.068		.060	.058		.058	.064	.062		.060		.055		.061						
5	.18		0.18		.20	.20	0.20		.22		.22		.24		.24										
	.057		.067		.071	.070	.071		.064		.074		.076		.073										
6													.23	.23		.26		.29		0.33		0.37		0.37	
														.055		.056		.060		.061		.058		.060	
7							.23			.27	.27		.30		.31		.33		.37		.36		.40		
										.046	.051		.054		.054		.052		.050		.056		.059		
8										.22		.23		.24	.25			.28	.30		.35		.36		0.37
												.063		.064	.065			.064	.063		.057		.067		.071
9																	.33		.32		.37	.36			.40
																	.061		.068		.065	.060			.075
10		.15		.16		.18		.18		.19		.21				.24		.26							
		.049		.049		.068		.060		.060		.056				.054		.050							
11											.24		.25		.25	.26		.28		.29		.27		.35	.37
													.061		.059	.066		.063		.064		.071		.064	.066
12														.25		.26	.27		.28		.30				.34
														.063		.061	.060		.063		.066				.068
13					.20	.21		.19		.20		.20		.21		.23		.23		.24					
					.042	.044		.056		.065		.072		.066		.062		.068		.064					
14				.15		.20		.22				.19		.19		.21		.22		.23					
				.058		.047		.044				.047		.056		.056		.051		.046					

[1] The indices for the other individuals are given in Section III, Statistical Material, pp. 125–133.

[2] See Chart I *a* (p. 38) and Chart I *b*, p. 53.

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The gain in lung capacity or vital index also increases with age and in general follows the tendencies just indicated for the weight-height indices.

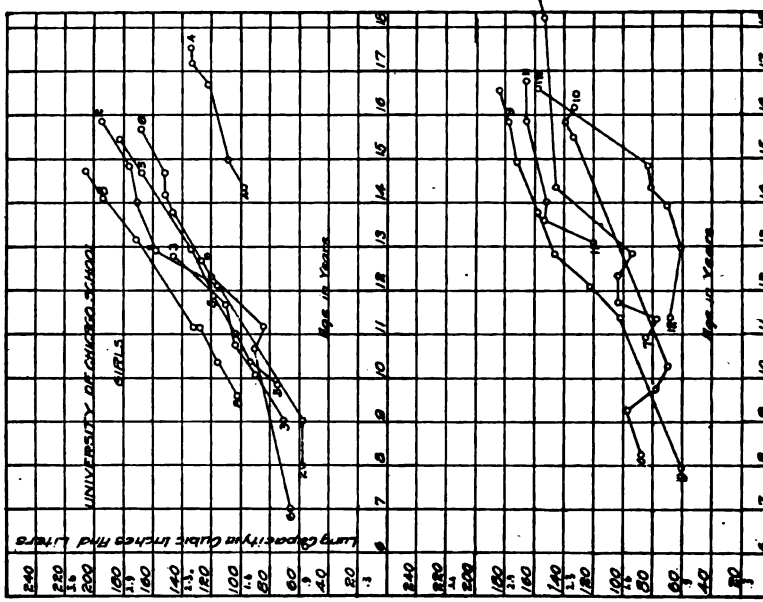

FIG. 28.—(Chart XIVb) Lung capacity curves for University of Chicago elementary and high schools.

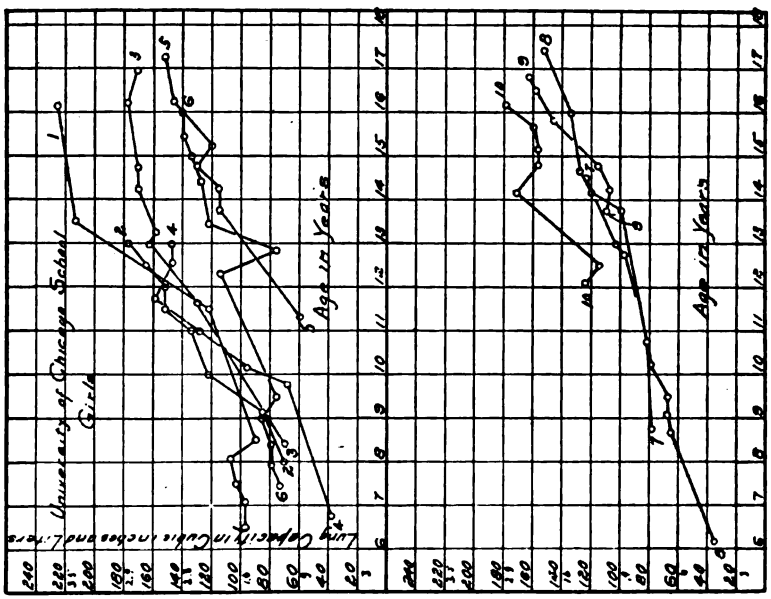

FIG. 27.—(Chart XIIIb) Lung capacity curves for University of Chicago elementary and high schools.

The following table gives the averages of all the weight-height and vital indices for the boys and the girls from the two groups of schools:

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TABLE 10.—*Average weight-height and vital indices, for ages 5½ to 17½ years—Horace Mann, F. W. Parker, and Chicago schools.*

AVERAGE WEIGHT-HEIGHT INDICES.

	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	15½	16	16½	17	17½
Boys.																									
Horace Mann	0.178	0.176	0.188	0.187	0.195	0.195	0.204	0.202	0.201	0.218	0.230	0.224	0.232	0.234	0.253	0.259	0.273	0.269	0.302	0.274	0.328	0.310	0.351	0.334	0.423
F. W. Parker	.....	.185	.192	.185	.198	.192	.204	.206	.211	.223	.232	.227	.240	.246	.246	.256	.264	.222	.287	.302	.317	.323	.322	.340	.344
Girls.																									
Horace Mann	.156	.174	.187	.191	.193	.195	.208	.187	.225	.216	.226	.240	.255	.245	.274	.278	.298	.302	.310	.323	.337	.325	.342	.314	.364
F. W. Parker	.....	.170	.163	.177	.173	.182	.180	.191	.200	.217	.206	.216	.226	.273	.254	.261	.270	.280	.293	.295	.316	.311	.318	.317	.318
Chicago	.....	.160	.200	.205	.194	.195	.188	.198	.200	.232	.224	.224	.245	.248	.243	.254	.286	.279	.252	.254	.313	.305	.312	.307	.312

AVERAGE VITAL INDICES.

Boys.																									
Horace Mann	0.0516	0.0518	0.0588	0.0564	0.0588	0.0653	0.0622	0.0578	0.0629	0.0581	0.0612	0.0610	0.0616	0.0621	0.0613	0.0596	0.0613	0.0610	0.0622	0.0652	0.0639	0.0668	0.0681	0.0655	0.0730
F. W. Parker	.....	.0625	.0780	.0625	.0560	.0715	.0510	.0536	.0494	.0575	.0602	.0602	.0557	.0631	.0606	.0606	.0607	.0591	.0630	.0620	.0634	.0612	.0618	.0630	.0700
Girls.																									
Horace Mann	.0500	.0390	.0463	.0434	.0637	.0498	.0520	.0507	.0567	.0530	.0532	.0538	.0533	.0531	.0542	.0548	.0539	.0530	.0539	.0526	.0535	.0548	.0539	.0580	.0535
F. W. Parker	.....	.....	.0490	.0496	.0615	.0436	.0615	.0537	.0568	.0609	.0636	.0598	.0587	.0575	.0569	.0575	.0594	.0568	.0548	.0562	.0543	.0577	.0567	.0560	.0581
Chicago	.....	.0350	.0480	.0450	.0575	.0440	.0467	.0523	.0462	.0490	.0516	.0575	.0467	.0527	.0540	.0553	.0518	.0577	.0477	.0504	.0485	.0563	.0528	.0520	.0502

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It will be noted that the averages destroy the individual characteristics of the relation of the growth in weight and height, since the fluctuations due to physiological maturity counteract each other in a manner that neutralizes rhythmic tendencies. It may be observed that the weight with boys in proportion to the height increases just over 100 per cent from 5½ to 17½ years; the increase with the girls is slightly less than that of the boys. It is very difficult to observe nodes in the relationship of the two aspects of growth, but apparently there is an increase at 10½ and another at 14½ years of age. This substantiates the previous conclusion that the pubescent acceleration in weight precedes that of height, and that weight continues to increase much more rapidly than height after 14½ years for boys. These two nodes may be noted to appear approximately at 10 and 13½ for the girls.

There is less increase in relative growth in weight in proportion to lung capacity than in the case of height. For boys the increase from 5½ to 17½ is from 30 to 40 per cent when averages are taken, and for girls there is less increase. These average results, as in the case of the weight indices, are not representative of individual development, since they are averages.

11. THE CORRELATION OF GROWTH IN HEIGHT AND WEIGHT TO SEXUAL DEVELOPMENT.

Selecting the individual growth curves of the girls whose first menstruation has been carefully recorded in years, months, and days, and placing them in a chart (No. XVa), it is at once apparent there is a direct correlation between physiological age as evidenced by height and weight and the advent of menstrual functions. The tallest and heaviest girl (No. 1, Chart IVa) in the group from the three schools began her pubescent acceleration in height with the usual accompanying changes in weight at about 10 years. This is unusually early, but is accounted for by the previously established conclusion that her height, weight, and healthy constitution indicated an early physiological development. As indicated by the cross line in the chart, the menses appeared when she reached 12 years of age.

The second and third girls (No. 3, Chart VIa, and No. 1, Chart Va) are each tall and heavy. The second, or heavier one, had her first menstruation as early as 11 years, and the former at 11½. Both of these girls were apparently in good health at the time; both had previously had adenoids removed.

The fourth girl (No. 3, Chart VIa), who is anemic and neither as tall nor as heavy as either of the others, but above median height, began menstruation at 13 years 3 months. The fifth girl (No. 2, Chart XIIIa), who is above median height and weight, began menstruation at 12 years 5 months; the sixth (No. 3, XIIIa), also above median

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height, at 13 years 3 months; the seventh (No. 4, XIIIa) at 13 years 8 months; the eighth (No. 5, XIIIa) at 15 years 3 months 17 days; the ninth (No. 12, XIVa) at 14 years; the tenth (No. 6, XIVa) at 13 years 9 months; the eleventh (No. 9, XIVa) at 13 years 9 months; the twelfth (No. 9, XIIIa) at 16 years 7 months; the thirteenth (No. 10, IVa) at 16 years; the fourteenth (No. 14, XIVa) at 15 years.

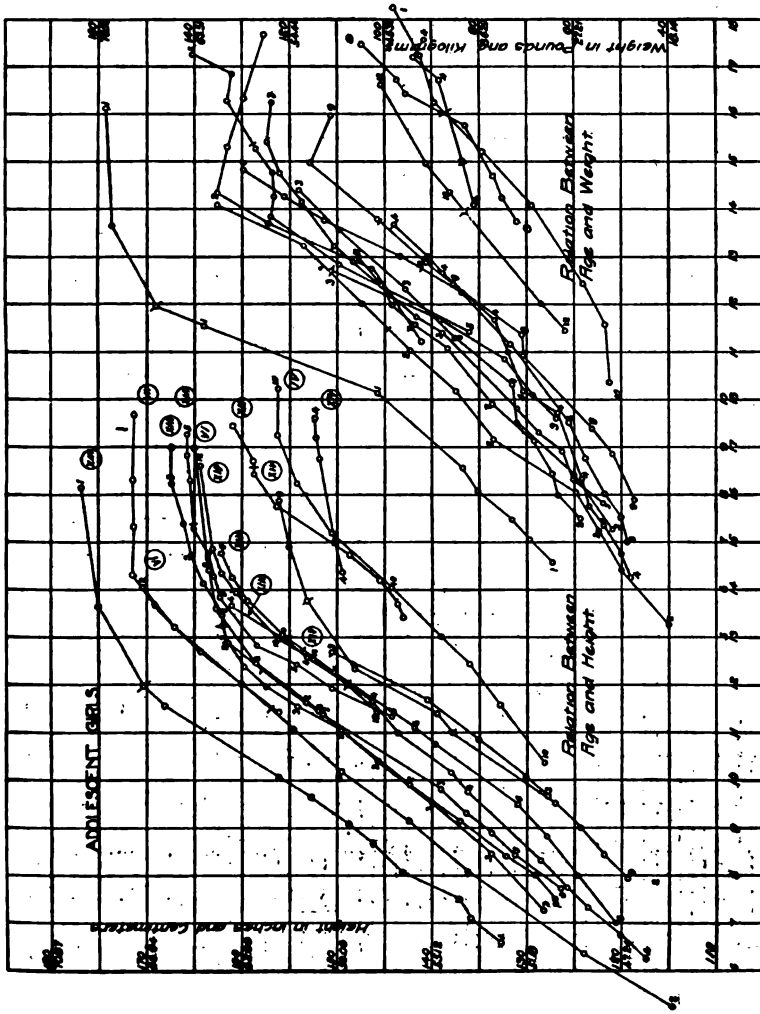

FIG. 20.—(Chart XVa) Periods of maturation for girls.

Height and weight, therefore, it would appear, offer excellent objective criteria for teachers and parents for determining the advent of menstruation as a factor in pubescent development and the onset of maturity. If the girl is tall, healthy, and well nourished, this physical stage may be reached as early as 11 years in a normal girl; if tall, but under weight, it may be delayed; if very short and markedly light, it may be delayed until 16 years of age.

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These conditions have wide educational application both in physical training and school work. They emphasize the fact that the smaller child should be treated as a younger person who has not had the physical development and the accompanying mental disturbances and experiences which would seem to be indicated by her chronological age in years, and which, too often, has been used as a basis of classification, training, and social activities.

The prevalent idea that menstruation should occur between the ages of 14 and 16 is also untenable, since the extremes in these cases represent normal healthy girls of different physiological development.

Since writing the above conclusions, I have had access to Weissenberg's *Das Wachstum des Menschen*, and he substantiates my observations with a limited number made by him. He finds the girls who have had their first menstruation before 13 years of age taller, as a rule, than those who have not reached this stage in their physiological development before 15 years of age. His results are (p. 200):

Age of menstruation.

First menstruation on or before 13 years of age.		First menstruation not having occurred before 15 years of age.
Height.	Age at first menstruation.	Height.
Centimeters.	*Years.*	*Centimeters.*
152.0	13.0	142
144.0	12.0	148
157.0	11.0	148
154.0	12.0	150
157.0	11.0	148
140.0	13.0	145
147.0	13.0	158
154.5	12.5	149
145.5	12.5	151
.....	.....	151
.....	.....	148

It is at once apparent the first group of girls are above normal height, which Weissenberg finds to be 144.5 centimeters for this age, while the others are comparatively short, since the norm for this age is 150.5 centimeters.

Weissenberg also studied the advent of first menstruation for 1,273 Jews and 768 Russians, and found the average age for the Jews 14 years 2 months and for the Russians 14 years 11 months. Jamasaki found the age to be 15 for Japanese girls and 17 for Chinese, on the average.

These differences in ages are no doubt greatly influenced by racial and climatic conditions, but the conclusions of this investigation, so

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far as I am able to determine, hold true for individuals within a race and under similar environmental conditions, i. e., the taller, heavier girls, with extensive lung capacity, mature physiologically earlier than those below the median or average in these respects.

Other signs or criteria of physiological age are the early appearance of the teeth and the development of the bones of the wrist, changes of the voice and pubescent changes during adolescence. The appearance of first menstruation is one of the most significant signs.

12. CONCLUSIONS.

Growth in height.—That these boys and girls form a select group and that school medical inspection, directed play, and physical training are important educational agencies is shown by the fact that on the average these children are taller, heavier, and have better lung capacity than any group in a series of 112, extending from Quetelet's first study in 1836 to 1913 and comprising over 1,000,000 individuals.

The boys are taller than the girls from 6 to 11 years of age, and the girls then become taller and remain so until 14½, after which the boys are again taller. The widest range of individual differences for boys and girls is during adolescence.

The per cent of increase in height increments over the initial heights for a given chronological age from 6 to 18 is so comparatively uniform in many cases that the growth curves may enable us to prophesy with considerable accuracy how tall a child of normal growth should be at any subsequent age within the interim, providing his relation to a given median or norm be known.

The trend of the height curve, aside from the period just previous to the accelerated pubescent growth, tends toward convexity. The decrease in increments of growth in height just before the acceleration is more marked with boys than with girls. If the increase before adolescence is uniform, this uniformity tends to persist throughout adolescence; if there is unusually rapid growth for the individual from 7 years to the beginning of adolescence, there is a decrease during adolescence, and there is a reversion of the common rhythmic order.

Of the boys and girls whose height curves are plotted for the preadolescent and adolescent ages, a few show a regular uniform rate of increase at pubescence, more show an accelerated rate, and fewer show a decrease in gain.

The cases of marked arrest in growth in height with this group of children occur during the early adolescent period and persist through the period.

Growth in height is affected by the inception and removal of adenoids, but the common children's diseases apparently have little effect on increase in stature.

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The average increments of growth of those above and below the median height, the individual increments of growth in the four tables of boys and girls, the individual growth curves, the advent of maturity with the girls, show that the children above median height between the chronological ages of 6 and 18 grow in stature and in physiological maturity in advance of those below the median height, and they may be physiologically from 1 to 4 or even 5 years older than those below the median height. Those above the median height have their characteristic pubescent changes and accelerations earlier than those below; there is a relative shifting of the accelerated period according to the individual's relative height.

For the girls included there is a direct correlation between the advent of first menstruation and different heights of the individuals. The taller girls mature earlier than the ones below the median.

Growth in weight.—The boys are heavier than the girls from 6 to 12 years of age, and the girls then become heavier and remain so until 16, after which the boys surpass them.

In many cases it would be possible to prophesy the approximate weight at any later age within the interim from 6 to 18 years of age. However, the weight curves show more marked individual variations and fluctuations than the height and in some cases show actual loss of weight.

The trend of the weight curves, differing from the height curves, is toward concavity, with more marked concavity (or loss of increments of gain between 8 and 13 years) for boys than girls.

The weight curves are characterized by a period of rapid acceleration during adolescence, except in cases of marked arrest, which are usually accompanied by marked arrest in growth in height. There are very few curves of a uniform increment of growth during adolescence.

Marked arrests of growth in weight for these children, like those of height, occur during the adolescent period.

Growth in weight is materially affected by the inception and removal of adenoids and the inception of or recovery from disease.

The heavier boys and girls are the taller boys and girls, and there is a fair parallelism between the relative rank in height of a boy or girl and his or her relative weight within a group.

The boys and girls below median height have their periods of rapid pubescent acceleration in weight later than those above, since the same general principles of physiological age hold for weight as for height as a rule.

Growth in lung capacity.—The boys have greater lung capacity on the average than the girls for all periods except between 13 and 14 years of age.

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The annual increase in lung capacity is slightly less regular than that of weight, and the curves tend toward the same concave form. The individual fluctuations are more like those of weight than height.

The concavity of the lung capacity curves, like those of weight, is more marked with boys than girls.

Marked arrests in height and weight are uniformly accompanied by arrest in growth of lung capacity.

There are a few cases of uniform increase in increments of growth in lung capacity during adolescence.

Growth in lung capacity is materially affected by the inception of and recovery from disease.

The boys and girls with greatest lung capacity are almost invariably those of greatest height and weight, and each maintains his or her relative position within the group as a rule.

The boys and girls above and below median height differ in their periods of accelerated growth in lung capacity in a manner similar to the differences in height and weight.

(B) AGE, GRADE, AND SCHOOL STANDING.

1. CURRICULA AND METHODS OF GRADING.

The subjects of instruction in the Horace Mann School, in the elementary work, include arithmetic, art, composition, French, geography, grammar, history, literature, manual training, nature study, penmanship, reading, science, and spelling; and the high-school subjects are algebra, biology, chemistry, Cicero, civics, English, French, German, geometry, history, Latin prose, manual training, physics, trigonometry, and Virgil. The Francis W. Parker School includes English, French, German, handwork, history, mathematics, reading, science, spelling in the elementary school, and Latin in addition in the high school. Both schools have 12 grades above the kindergarten. The Horace Mann School marks begin in the third grade and the Francis W. Parker School marks as low, in some instances, as the first grade.

With the exception of a very few individuals the school marks were recorded in the letters A, B, C, D, E, and F, and for these are substituted the following equivalents given on the report card: A = 97½; B = 90; C = 80; D = 72½; E = 65; F = 30. In the few instances where the numbers 1, 2, 3, 4, and 5 were used the following equivalents, recommended by the head of the school, are used: 1 = 95; 2 = 80; 3 = 50; 4 = 30.

The record card is shown on the next page. The marks for music and application are not included in this study.

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[Record card.]

HORACE MANN ELEMENTARY SCHOOL.

Name..... Grade.....

190 -191	ENGLISH				Mathematics	Nature study	Geography	History	Penmanship	Manual training	Art	Music	Application	No. of absences	No. of tardinesses	Remarks
	Reading and literature	Spelling	Grammar	Composition												
Dec. 1																
Feb. 1																
Apr. 1																
June 1																

[Reverse side.]

A—95–100. B—85–95. C—75–85. D—70–75. E—60–70. F—0–60.

In order that a pupil may be promoted he must secure the mark D or above on his last report, and on at least two others, with no mark below E.

Parents or guardians are earnestly requested to examine this report, sign below and return.

Principal.

Dec. 1	
Feb. 1	
Apr. 1	
June 1	

2. THE DATA.

The average school mark for the 42 Horace Mann School boys is 81.9 per cent and is based on 8,625 final marks; the average mark for the 46 Horace Mann School girls is 85.9 per cent, based on 10,063 final marks; the average mark for the 26 Francis W. Parker School boys is 77.7 per cent, based on 1,601 final marks; and the average mark for the 21 Francis W. Parker School girls is 80.9 per cent, based on 1,393 final marks. There are fewer subjects included in the Francis W. Parker reports, and the marks reported are yearly marks, in place of quarterly marks. This, however, should not make much material difference in the results, since the teachers computed their own term averages. The study thus includes 10,226 final term marks for 68 boys and 11,456 final term marks for 67 girls, or 21,682 final term marks for 135 individuals. No marks for a longer period than four years were available from the University of Chicago elementary and high schools, and therefore they were omitted.

3. METHODS OF TABULATION.

The following table gives the average school standing, the number of marks considered, and the grades for each year for the 14 indi-

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viduals whose growth curves in height, weight, and lung capacity are plotted in Chart Ic. The Arabic numbers from 1 to 14, inclusive, refer to the number of the individual curves in the chart; the ages in years and months refer to the individual's age in June, when the first average school standing was computed, and all the subsequent average marks are for yearly intervals from this age; the average per cent is the average of all the subjects for the four terms for each year from September to June; the number of cases includes the number of marks giving the average mark for each subject for the four terms; the small figures above and to the right of the averages indicate the school grade, the high-school work beginning at the eighth grade unless otherwise indicated. The general averages and total cases are for the entire scholastic life included in this study. The 10 additional tables which follow are uniform in construction with Table 11.

The marks for No. 1 begin at 10 years 9 months of age in the fourth grade, with a yearly average of 81 per cent for 37 marks. One year later this boy advanced to the fifth grade and received an average of 82 per cent for 44 term marks, and so on until the eighth grade was completed. The final average school standing for this first boy, based on 187 marks, is 85 per cent.

The final scholastic standing of No. 2 is 80 per cent, based on 252 marks. This boy was absent from school in his fourteenth year, but returned and continued the work with the class the following year and graduated at 18 years. It should be noted that No. 9 was absent from school during the fourteenth and No. 12 during the seventeenth year, which delayed their advance to the next grade for one year.

It is important when interpreting these tables to keep in mind that the averages in the elementary grades are based on a larger number of subjects than those in the higher grades, and that in some instances where the number of marks is small the child was absent for part of the year, as indicated in the footnote. Assuming as a basis for normal progress that a child of 12 years of age should be in the sixth grade and one 16 years of age in the tenth grade, it will be noted that Nos. 1 and 14 are retarded one year; Nos. 11 and 13, two years; and No. 9 becomes retarded one year at 14, and No. 12 one year at 17. Nos. 4, 5, 6, and 10 are one year in advance of their grade. While the chronological age is not the most rational basis of grading, judging from what has been learned from the previous data included in this investigation, it is the basis on which these schools have in the main been graded, where no systematic allowances were made for the physiological age or for differences between boys and girls. It would appear that such a standard is applicable to these schools as indicated by their curricula and methods of promotion, although more attention is given to individual differences than in the average school.

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TABLE 11.—*School standing (for Chart Ic. Horace Mann boys—Average mark, grade, age, and number of cases).*[1]

No. of curve.	Age in years and months.[2]	Age in years.																								General average.	Total cases.
		8		9		10		11		12		13		14		15		16		17		18		19		20			
		Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.		
1	10–9	.....	.....	.....	.....	.....	.....	81^{4}	37	82^{5}	44	91^{6}	43	84^{7}	43	85^{8}	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85	187
2	10–2	.....	.....	.....	.....	85^{4}	37	83^{5}	40	86^{6}	39	77^{7}	48	.....	.....	80^{9}	28	79^{10}	20	75^{11}	24	75^{12}	16	.....	.....	.....	.....	80	252
3	8–6	.....	.....	84^{3}	39	80^{4}	37	87^{5}	44	87^{6}	48	82^{7}	42	78^{8}	24	84^{8}	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	84	254
4	9–3	.....	.....	85^{4}	41	85^{5}	47	90^{6}	22	89^{7}	47	80^{8}	28	75^{9}	25	74^{10}	24	67^{11}	6	.....	.....	.....	.....	.....	.....	.....	.....	81	240
5	8–0	82^{3}	40	80^{4}	39	83^{5}	40	81^{6}	43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	82	162
6	10–6	.....	.....	.....	.....	.....	.....	84^{6}	24	74^{7}	44	66^{8}	16	73^{9}	16	73^{10}	12	67^{11}	20	71^{12}	28	65^{12}	27	.....	.....	.....	.....	72	187
7	10–2	.....	.....	.....	.....	82^{4}	36	88^{5}	40	84^{6}	39	86^{7}	48	86^{8}	20	81^{9}	20	86^{10}	23	83^{11}	17	.....	.....	.....	.....	.....	.....	85	243
8	11–2	.....	.....	.....	.....	.....	.....	88^{5}	48	87^{6}	43	76^{7}	41	77^{8}	24	80^{9}	24	78^{10}	16	73^{11}	16	76^{12}	16	.....	.....	.....	.....	79	228
9	12–8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85^{7}	47	82^{8}	28	70^{9}	15	66^{10}	24	57^{12}	20	78^{12}	18	.....	.....	73	152
10	8–5	88^{3}	16	78^{4}	36	78^{5}	44	82^{5}	44	78^{7}	43	76^{8}	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80	203
11	10–9	.....	.....	.....	.....	.....	.....	90^{6}	40	87^{6}	26	92^{8}	44	90^{8}	43	89^{7}	48	83^{8}	27	83^{9}	16	80^{10}	20	66^{11}	18	74^{12}	24	83	306
12	13–2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85^{7}	21	84^{8}	20	87^{9}	24	85^{10}	28	.....	.....	78^{11}	24	86^{12}	20	.....	.....	84	93
13	9–9	.....	.....	.....	.....	79^{3}	29	80^{5}	16	75^{6}	38	72^{8}	44	83^{8}	43	82^{7}	43	78^{9}	24	.....	.....	.....	.....	.....	.....	.....	.....	78	237
14	10–5	.....	.....	.....	.....	.....	.....	84^{6}	38	81^{6}	24	87^{6}	45	87^{7}	38	78^{9}	20	75^{9}	18	.....	.....	.....	.....	.....	.....	.....	.....	82	183

[1] The tables for Charts IIc to XIc may be found in Section III, Statistical Material, pp. 134–138.

[2] Age when marks began.

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SCHOOL PROGRESS IN THE HORACE MANN SCHOOL.

The average mark is 81.9 for all the Horace Mann School boys included in the tables, and the curves which follow express the individual averages in the table. This average is based on 8,625 final marks for this group of 42 boys. The median, or middlemost mark, for the group falls between 81 and 82 per cent, and therefore the average may be assumed as a norm for a basis of comparison with the height, weight, and lung capacity norms. The grade norm has been established on the basis of age and grade, assuming a boy of 12 years of age should be in the sixth grade and a boy of 16 years of age should be in the tenth grade. The two variables in the distribution of marks and grades make it extremely difficult to establish one norm of school progress. This norm may be illustrated best perhaps through graphs, and a series of charts accompanies each of the tables on age, grade, and school standing.

It is at once apparent that there are 5 boys in Table 11, Ic, who are above the average school mark, or norm (81–82 per cent), for their group, and all of these boys except one are retarded by grade. There are 6 boys below the norm, and the 3 who were irregular in attendance are retarded by grade. In Table 24, IIc, there are 6 boys above the norm in mark; 2 of these are retarded by grade and 1 accelerated by grade. In the second group 4 boys fall below 81 per cent and 3 are retarded by grade and 1 accelerated by grade. The irregular attendance is equally distributed between those above and those below normal mark and normal grade. In the third group (Table 24, IIIc) 3 boys are above the average or normal mark, and 1 of these is accelerated by grade. Eight boys are below the norm in mark, and 3 of these are retarded by grade.

Among the Horace Mann School girls the marks are much higher; the median and average both lying between 84 and 85 per cent. In the first group (Table 24, IVc) there are 3 girls above the norm in mark and these are in normal grade. There are 4 below the norm in mark, and 2 of these are retarded by grade and 1 accelerated two grades. In the second group (Table 24, Vc) 3 girls are above the norm in mark, and 2 of these are retarded by grade; there are 8 below the norm, and 2 of these are retarded by grade and 2 accelerated by grade. In the third group (Table 24, VIc) there are 4 girls above the norm in mark and 7 below the norm, of whom 3 are retarded by grade. The last group of Horace Mann girls (Table 24, VIIc) contains 3 above the norm, of whom 2 are retarded by grade and 2 below the norm who are also retarded by grade.

There is a higher average by grade and by mark for the girls than for the boys, and there is more irregular attendance among the girls, which has a retarding influence both as to grade and mark when compared with the other girls whose attendance is irregular.

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THE FRANCIS W. PARKER SCHOOL.

The average marks for the Parker School are below those of the Horace Mann for both boys and girls. In the first group of boys (Table 24, VIIIc) there are 5 boys above the norm (77–78 per cent), and 1 of these is accelerated by grade. There are 5 below the norm in mark, and 2 are retarded by grade. In the second group (Table 24, IXc) 10 boys are above the norm in mark, and 2 of these are retarded by grade. There are in this group 4 below the norm in mark, and 1 is accelerated by grade and 2 are retarded by grade.

The average mark of the girls for this school is 80.9 per cent, and the median is close to this. In the first group (Table 24, Xc) 8 girls are above the median in marks, and 3 of these are retarded by grade. Among the 3 below the norm in mark, 1 is retarded by grade. In the second group (Table 24, IIc) 5 are above the norm in mark, and 4 of these are accelerated by grade. Of the 4 below the norm in mark, 3 are retarded by grade.

Notes on the school standing of individuals whose marks and grades appear in Table 11 and Chart Ic.

1. Left school at the end of first year of high school.
2. Out of school one year and returned in second year of high school; remained four years with low marks; graduated.
3. Good work in elementary school; conditioned in Latin and French first year of high school (eighth grade); did not take full work second year and withdrew at end of term.
4. Out of school first two terms in sixth grade; conditioned in Latin and German during ninth; promoted to tenth; absent much in second term of eleventh; withdrew.
6. Entered beginning of third term in sixth grade; conditioned in arithmetic, grammar, French, during seventh; in biology during eighth; in Latin during ninth; in English during tenth; in Latin, French, chemistry, geometry, during eleventh; graduated after two years in twelfth.
7. Graduated.
8. Conditioned in algebra and French during ninth grade; in algebra in eleventh; graduated from twelfth.
9. Conditioned in Latin during eighth grade; in English and Greek during ninth; failed to graduate.
10. Entered third grade but did not take full work; inattentive during seventh; withdrew at end of eighth.
11. Absent during fourth term of fourth grade; conditioned in Latin, chemistry, algebra, and geometry after much absence during third term of eleventh; graduated at end of twelfth.
12. Entered seventh grade but extended absence during second and third terms; withdrew from school for one year at end of tenth; conditioned in Latin during eleventh; graduated.
13. Repeated part of third-grade work; conditioned in arithmetic during fourth; in English during fifth; improving steadily; still in school.
14. Absent during third and fourth terms of fifth grade; conditioned in Latin and history during ninth; still in school.

[The notes on school standing for the other individuals may be found in section III. Statistical material, pp. 139–142.]

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4. CHARTS OF SCHOOL STANDING.

Expressing these tables in school standing in graphic form where 20 millimeters in the horizontal equals one year in age and 30 millimeters in the vertical equals one school grade, the two variables, age

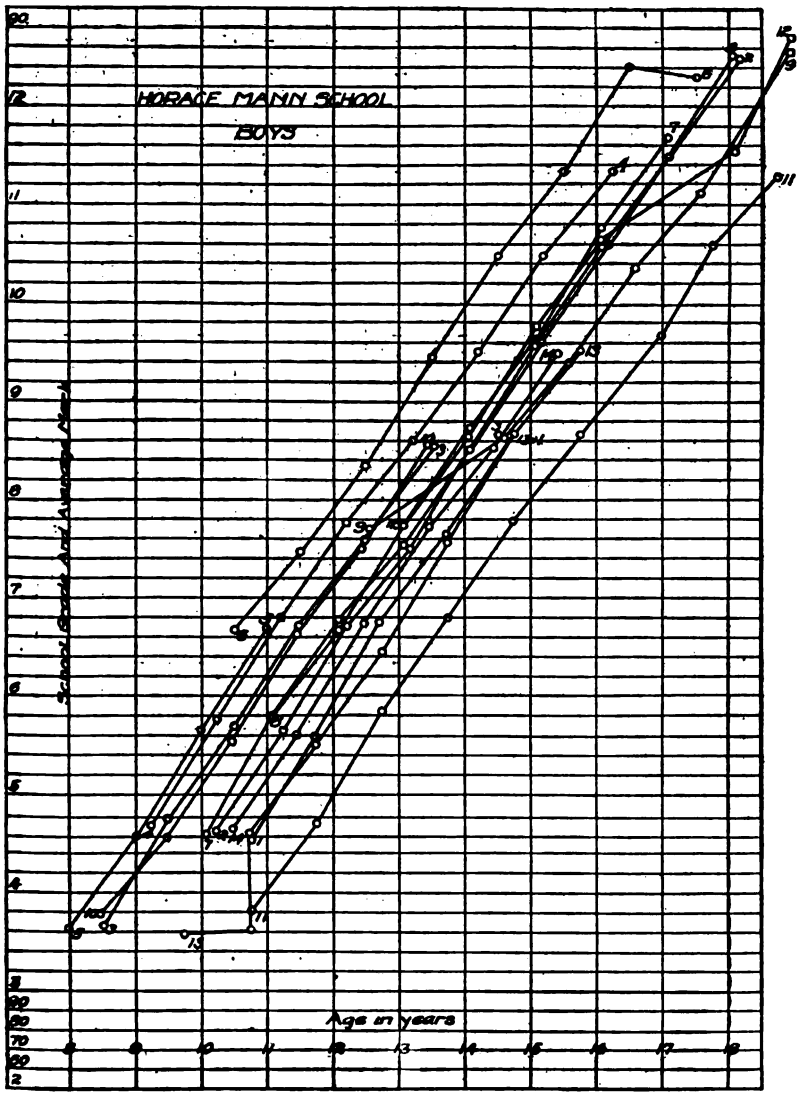

FIG. 30.—(Chart Ic) School-standing curves for Horace Mann School boys.

and school grade, may be expressed in the form of a continuous line. A third variable, or the average mark for each grade, may also be expressed, assuming the first 6 millimeters in the vertical within a grade to represent a standing between 50 and 60 per cent, the second

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6 millimeters, between 60 and 70 per cent; the third, between 70 and 80 per cent; the fourth, between 80 and 90 per cent; and the fifth,

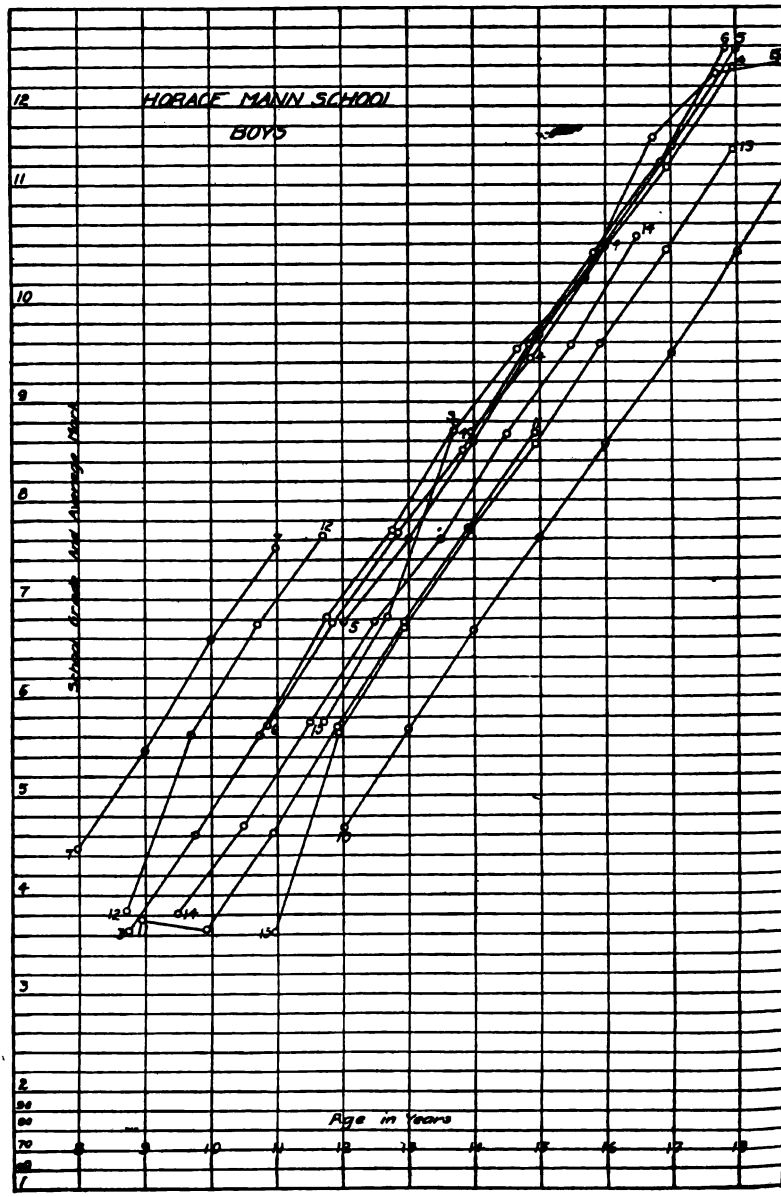

FIG. 31.—(Chart IIc) School-standing curves for Horace Mann School boys.

between 90 and 100 per cent. Thus it will be noted in the chart that the uppermost curve represents the most precocious child and the lowest curve the most retarded from standpoint of age and grade.

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No. 6 is the most precocious in Chart Ic from the standpoint of age until he reaches 16½ years, and No. 11 the most retarded throughout his school life. On the contrary, comparing the average marks within the grade, No. 11 has higher marks than No. 6, as may be seen by noting the height of the circles in each grade.

It is at once apparent that 3 of these 14 boys in the first group lost a grade during the [redacted] included. In two cases this was due to absence from school for a year, in the other case to the gradual lowering of the average mark of a boy who was being promoted in advance of his age on low grades. The nine additional charts which follow are uniform in construction with Chart Ic.

5. CONCLUSIONS.

In these schools where there is careful grading, the widest range of individual differences for the 135 pupils is four years in any one grade, with uniformly a wider range for boys than for girls.

If 12 years of age is taken as normal age for the sixth grade and 16 years for the tenth grade, there are in this group of 58 boys and 57 girls 27 boys and 26 girls retarded for one year or more during the school course and 13 boys and 11 girls accelerated for one year or more.

Girls maintain a higher school standing than boys; there are also more repeaters among the boys; and fewer cases of "skipping" a grade. In the fourth and fifth grades the boys and girls are approximately of the same age, but in the last year of high school the boys are older on the average.

There are only 9 instances of boys dropping back a grade and 4 instances with the girls; there are 4 cases of boys skipping a grade and 8 cases with girls. These are confined to the Horace Mann School.

Pupils who are relatively poor in the first few grades are relatively poor in the upper grades; that is, poor marks in the early school course are indicative of low standing throughout the school course. Boys and girls of normal school age or under maintain a better school standing both as to grades and marks than those over age for grade.

The age of entrance and the grade entered after 6 or 7 years determines the age for completing the school. With few exceptions these children progress through the elementary school at the rate of one grade per year, regardless of the chronological age at entrance.

There are waves or nodes in the marks from year to year for each individual, the most prominent drops coming at the entrance to the high school and in the fourth and fifth grades.

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(C) THE RELATION OF PHYSICAL GROWTH TO SCHOOL STANDING.

1. SCHOOL STANDING AND GROWTH IN TWO ELEMENTARY SCHOOLS.

We now see the fundamental questions are: How do children progress through school? How do children mature physiologically during their school life? What is the relation between these two aspects of development when both are st[redacted]ecutively throughout the elementary school?

It must be recognized that since we are investigating the school standing age and since promotions and school efficiency are based on marks, these records must be taken at their face value, because they represent school practice and because they offer tangible criteria of the efficiency of the individuals of the school.

Each school has 12 grades above the kindergarten. The departmental method of instruction is more or less in vogue in all grades; and the same teachers, in some instances, have marked the pupils in their respective studies for several years. The teachers are among the best trained in America and the pupils are given a great deal of individual attention.

A more careful study of individual marks reveals that there are waves or nodes in the marks from year to year for each individual. The two most prominent drops are at the entrance of high school and in the fourth and fifth grades. The lower averages are most marked in the transition to the high-school grades, where the number of subjects also decreases. In these schools the best marks are found in the sixth and seventh grades for boys and girls, and during these grades the greatest number of subjects are included.

TABLE 12a.—*Average marks and average number of subjects for pupils in the elementary school, based on quarterly term marks.*

HORACE MANN SCHOOL.

	Grades.																Total average elementary school.
	1		2		3		4		5		6		7		8		
	Average marks.	Subjects.	Average marks.	Subjects.	Average marks.	Subjects.	Average marks.	Subjects.	Average marks.	Subjects.	Average marks.	Subjects.	Average marks.	Subjects.	Average marks.	Subjects.	
Boys....	.....	....	.....	....	84.6	34	81.9	36	82.6	55	85.5	46	83.3	44	80.3	22	83.7
Girls....	.....	....	.....	....	90.0	34	87.2	39	85.0	45	89.0	44	87.4	46	85.4	22	87.9

FRANCIS W. PARKER SCHOOL.

Boys....	75.5	8	71.4	8	74.0	8	75.0	8	75.0	8	76.2	8	77.6	8	77.3	8	75.2
Girls....	84.8	8	89.8	8	84.2	8	83.9	8	84.0	8	84.9	8	84.5	8	83.4	8	84.8

The fact that marks are lower during the fourth and fifth grades is significant. The reasons for the lower averages may be gleaned

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from each pupil's marks in each subject for each period and from the growth curves.

The variability of marks and the changing distribution in their ranking show that many pupils are not doing the kind of work given them in some subjects during these intermediate grades. What these subjects are for the Horace Mann School, and how they change from grade to grade, is shown in the following table, which gives the summaries of the marks that are very poor, poor, or only fair.

TABLE 12b.—*Number of pupils in each study in the various grades doing only fair or mediocre work.*

BOYS.

Grades, and number of pupils in grade.	III-19.	IV-30.	V-39.	VI-38.	VII-38.
Art	7	10	11	4	7
Composition	6	15	9	7	14
French and German	0	0	0	0	12
Grammar	0	2	0	8	19
Geography	1	8	1	7	9
History	8	4	5	5	11
Language	2	0	5	0	0
Literature	2	7	3	1	0
Manual training	7	10	11	1	0
Mathematics	10	20	10	10	17
Nature study	1	0	2	0	5
Penmanship	5	19	20	13	14
Reading	3	7	7	2	5
Spelling	6	13	10	6	13

GIRLS.

Grades, and number of pupils in grade.	III-27.	IV-36.	V-37.	VI-38.	VII-38.
Art	4	8	11	1	2
Composition	3	4	6	1	3
French and German	0	0	0	0	8
Grammar	0	2	3	0	0
Geography	1	11	7	0	8
History	0	8	5	1	9
Literature	1	3	5	1	4
Manual training	2	4	6	1	3
Mathematics	0	12	12	5	10
Nature study	2	0	5	1	3
Penmanship	1	9	7	2	0
Reading	6	10	5	0	2
Spelling	4	5	6	1	3

The very poor marks for the boys are: In the third grade, history 7, arithmetic 3, spelling 3; in the fourth grade, mathematics 10, penmanship 9, spelling 6; in the fifth grade, penmanship 9, mathematics 4, history 4; in the sixth grade, history 3, mathematics 3, penmanship 2; in the seventh grade, spelling 7, penmanship 6, mathematics 5.

For the girls the very poor marks are: In the third grade, spelling 2; in the fourth grade, mathematics 9, penmanship 5, geography 4; in the fifth grade, art 5, history 4, geography 2; in the sixth grade mathematics 1; in the seventh grade, geography 4, history 4, French and German 4.

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Among these boys and girls, those of normal school age or younger maintain a better school standing, both as to grade and mark, than those over age for the grade. This is important; why do these pupils of normal school age or under maintain this better school standing? A careful study of sustained absences does not account for the conditions, though absence and a study of diseases and accidents aid somewhat. The explanation lies in the advan[redacted]rity of the pupils. Since we have no recourse to consecutive m[redacted]tests throughout the elementary school life of these pupils, but since we have recourse to their consecutive physical measurements in height, weight, and lung capacity, the problem resolves itself into finding the relation between growth and school standing. The previous study of these individuals, together with their weight, height, and vital indices, diseases, and physiological changes, shows that the taller, heavier children mature physiologically in advance of the shorter, lighter ones; and a study of ages, grades, and the marks of the boys shows that those above the average height of the group, i. e., those whose physiological age is accelerated, complete the last grade of the elementary school at 12 years $9\frac{5}{8}$ months of age with an average of 84.35, and those below average height or of retarded physiological development complete the elementary school work at 13 years $7\frac{4}{13}$ months of age with an average of 81.72.

The taller, heavier, or physiologically accelerated boys and girls, complete the elementary school at an earlier age and with a higher average mark than the short, light, or physiologically retarded boys and girls. In following the present investigation the reader should be careful not to confuse brightness or precocity with stages of mental maturity. A mind may be more nearly mature than another and still be of inferior quality. The former has certain instincts and mental traits associated with growth which the latter has not experienced. The former is accelerated in growth physiologically.

The second significant explanation of the node or drop in the school standing of the fourth grade lies in the rate of development in physiological maturity of the boys and girls at these ages. The growth charts show there is less physiological growth in height, weight, and lung capacity before the adolescent acceleration than at any other time before the cessation of growth after the adolescent acceleration.

2. SCHOOL STANDING AND GROWTH IN HEIGHT.

Since we have the individual curves for both height, weight, lung capacity, and school standing for all the individuals included in the data for comparison, a very general understanding of the correlations or relationships may be gotten by making individual comparisons for each group.

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Comparing the boys' curves in Group I as given in Chart Ia for height and Chart Ic for school standing, it will be noted that—

The boys who are in advance of their normal grades, Nos. 4, 5, and 6, are above median height, and No. 10, who has low school marks, is

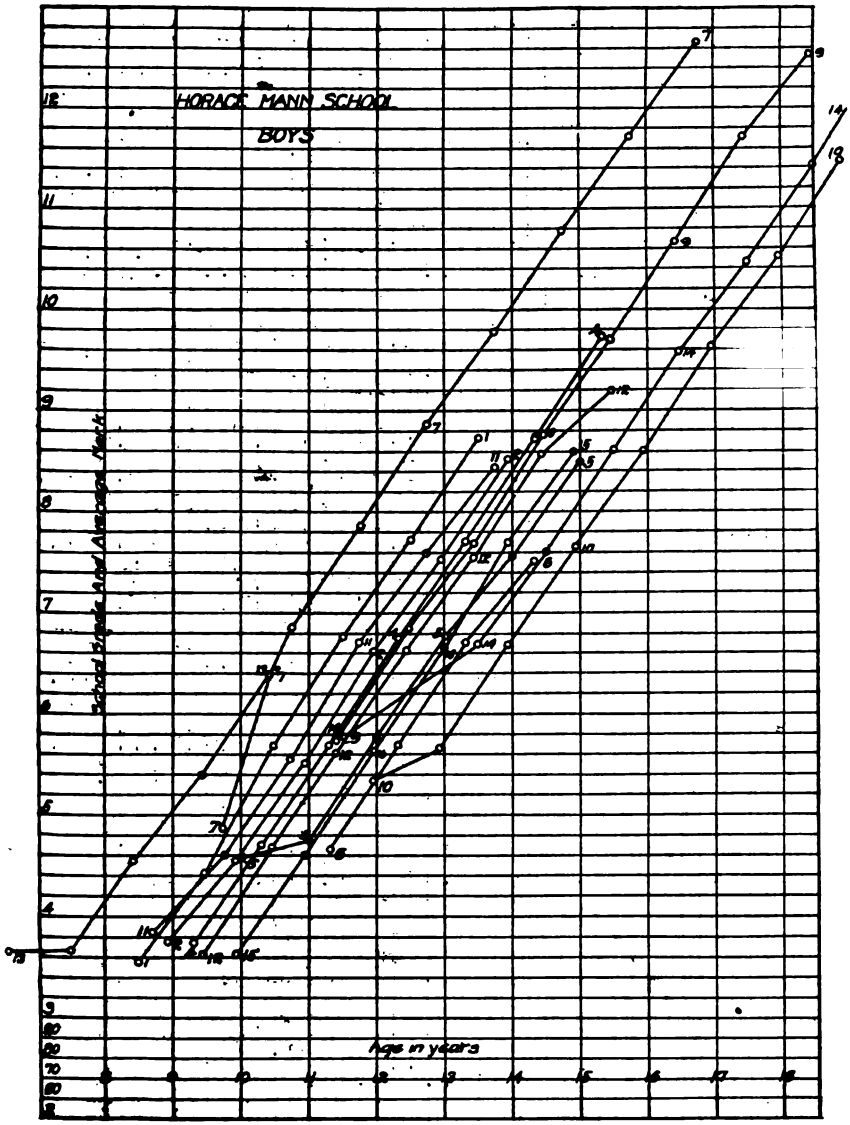

FIG. 32.—(Chart IIIc) School-standing curves for Horace Mann boys.

slightly below median height. Of the boys in this group who are retarded, Nos. 11, 12, 13, and 14 are below median height, and No. 1 dropped below his relative height during the preadolescent period and was anæmic. No. 9 became retarded at 14 years on account of

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absence and again at 18. He has a somewhat irregular growth curve in height during adolescence and is frequently ill.

The school standing of the boys in the second group (Chart IIc) of 15 presents two cases of "skipping a grade," Nos. 13 and 15. No. 13 is retarded one year at 12, and No. 15 one year; after skipping a grade the latter again becomes retarded at 18. In this group Nos. 7 and 12 are in advance of their grades for the short periods attended in the elementary school, the former being above median height, the latter below. The retarded boys are Nos. 10, 11, 13, 14, and 15. All of these are below median height except No. 10, who is anæmic, has appendicitis, and enlarged tonsils.

Chart IIIc shows the same general tendencies for each boy to hold his relative position in regard to school standing and in his ranking with his companions from the elementary to the high school.

In this group 2 boys, Nos. 7 and 13, are in advance of their normal grades. The former is above median height and the latter left school before 12 with an average mark below passing for the last two years. No. 7 has the highest school average of the group.

The retarded boys are Nos. 4, 5, 6, 8, 10, 14, and 15. No. 5 skipped a grade at 13; Nos. 6, 10, and 14 were late entering from another school; Nos. 8, 10, 14, and 15 are below median height.

In the first group of 11 girls (Chart IVc) No. 2 is two grades in advance of her normal grade at 12 years of age, if the same standard for age and grade is used for girls as for boys. Since both enter the schools at about the same chronological age and are promoted on the same basis, this uniform norm seems justifiable, as previously stated. No. 9 is one year in advance of her grade at 16. No. 2 is above median height, and No. 9 below, with good health and excellent school standing extending back to the third grade, which was completed at the early age of 8 years 7 months.

The retarded girls of Chart Vc are Nos. 3, 6, 7, and 8, who are fairly close to median height. No. 3 missed a year and later skipped a grade. No. 7 has low average marks and No. 8 poor health. No. 11 repeated a grade and is short in stature and nervous.

In Chart VIc of 13 there are 4 cases of girls skipping grades and but one case of a girl failing to advance a grade each year, which was not due to low marks. There are 3 cases of retardation before 12 years, and not any at 16, since these girls later omit a grade. Nos. 5, 6, and 7 skipped a grade during the period of most rapid growth.

No. 8 shows a marked arrest in physical growth in height at 14, which lasts until 18 and probably after, and the school marks also take a decided drop and remain low until 18. No. 9's growth is arrested at 14, and the average marks also fall below previous ones with one exception, at 16 years, where it is 1 per cent higher than at 12. The same is true of No. 5, whose growth is arrested between 14 and 15.

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The marks of this group (Chart VIIc) are primarily for the period between 12 and 18. There is a wider range of individual differences here than with the previous group. Since the group gives 4 cases of marked arrest during the adolescent period, it is worth while to note

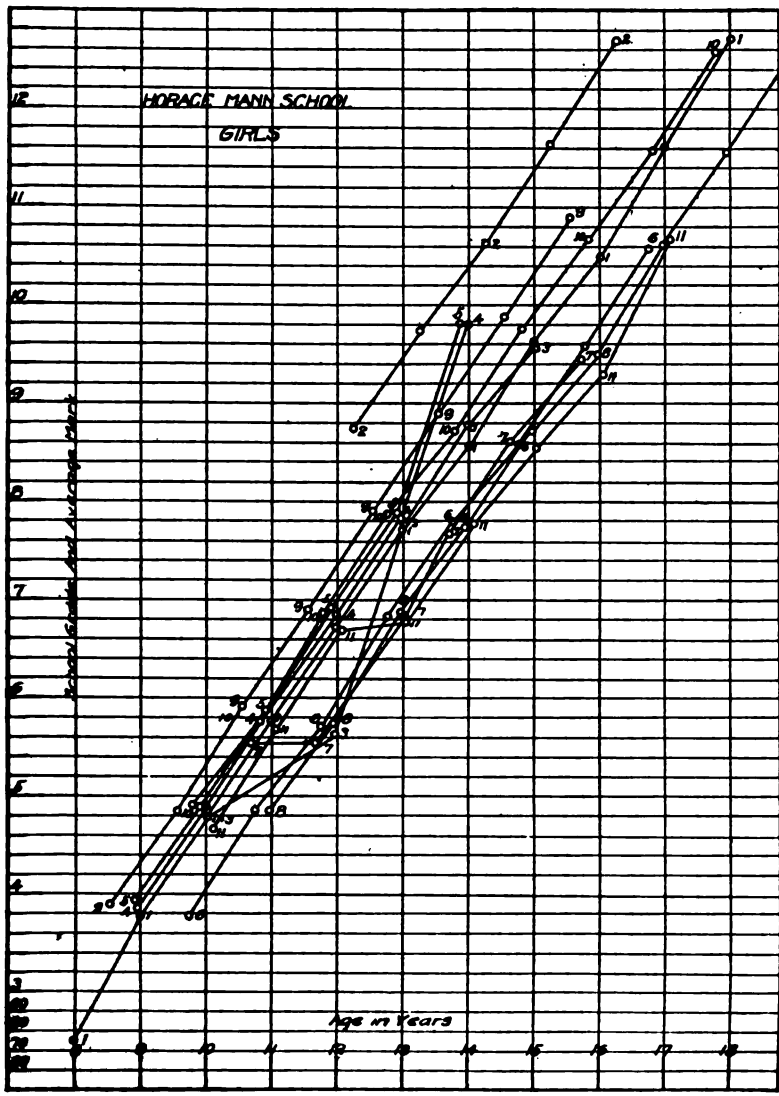

FIG. 33.—(Chart IVc) School-standing curves for Horace Mann School girls.

the corresponding changes in school standing. It may be noted all of these girls are retarded by grade except Nos. 1 and 3, who are above median height.

No. 2, who is also tall, maintained a high average mark, but was retarded one grade and had nervous trouble. No. 5's arrest in

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growth in height began to be most noticeable between 12 and 13 and continued until 17, and the final average mark began to fall between 14 and 15, and continued until 18. No. 6's physical growth was

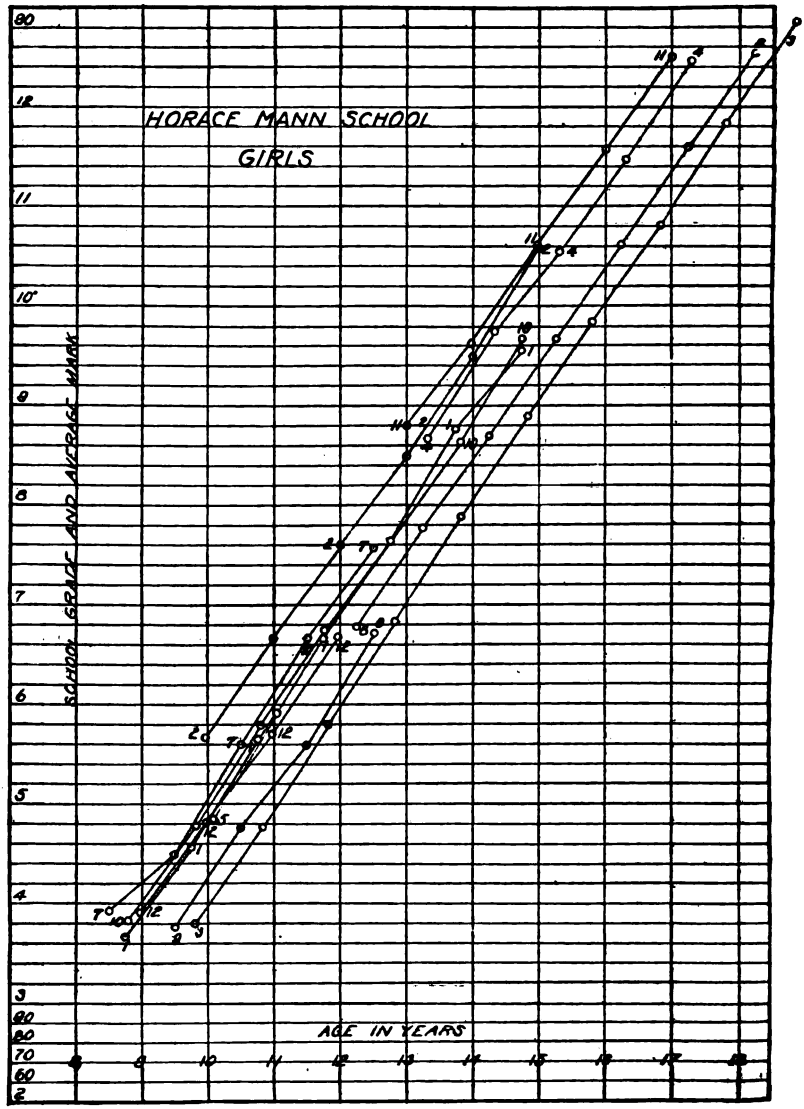

FIG. 34.—(Chart Vc) School-standing curves for Horace Mann School girls.

arrested between 12½ and 13½, and continued while the marks decreased between 15 and 16, and continued. No. 9's physical growth was arrested between 13 and 14, there was an accompanying drop in average mark, and both marks and growth increments continued low. No. 10 was arrested in height at 14 and the drop in

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school marks between 14 and 15 continued. No. 11's arrest in physical growth in height occurred at 16 and the lowering of marks

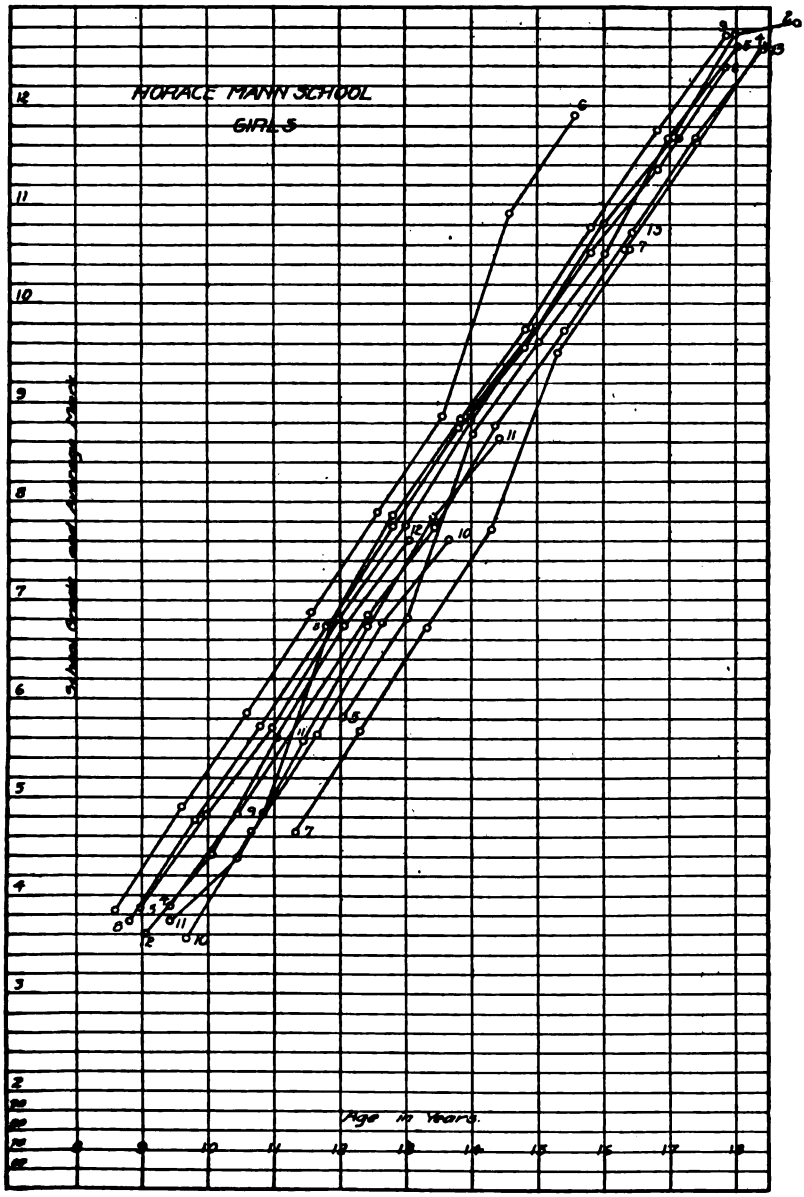

FIG. 35.—(Chart VIc) School-standing curves for Horace Mann School girls.

occurred between 16 and 17 and continued. These 5 girls were also retarded by grade at 12 and 16 years.

With the Francis W. Parker School boys is found remarkable uniformity from grade to grade and from one average mark to the

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next. No skipping, no dropping, and few individual fluctuations. There is, however, a wide range of individual differences, and the final average marks are in practically all cases low. In Chart VIIIc 1 boy (No. 2) is above average grade for his age, and 3 (Nos. 6, 7, and

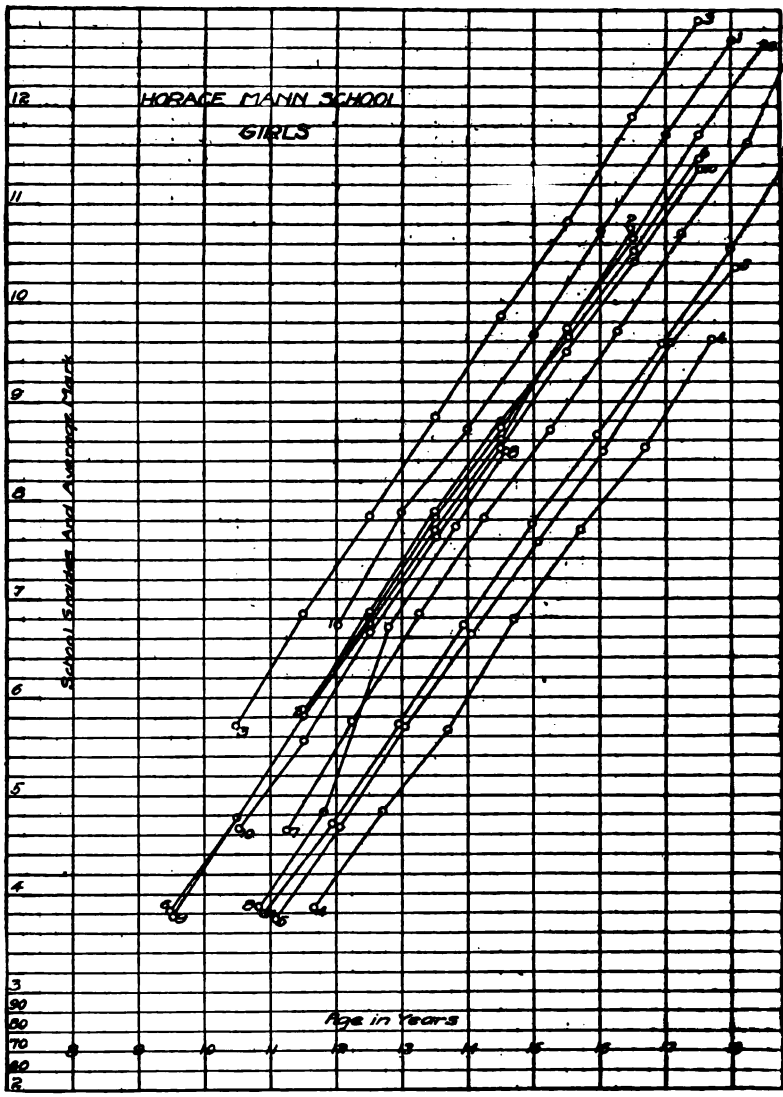

FIG. 36.—(Chart VIIc) School-standing curves for Horace Mann School girls.

8) are below. No. 2 is above median height; No. 6 is below, and Nos. 7, 8, and 10 about median height; No. 12 has the lowest marks of the group.

It should be stated here that the Parker School is a comparatively small school, which keeps records and marks closely, although little emphasis is placed on marks.

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Chart Xc shows remarkable uniformity of grades and marks and a narrow range of differences. This close uniformity makes it difficult to find correlations between the large number of individual differences and fluctuations in physical growth and school standing. Four of these girls are retarded by grades, Nos. 1, 4, 9, and 12. Two are above median height and 2 below. All show marked individual fluctuations. No. 12 has the lowest average, is of shortest stature, and shows more fluctuations than the others.

The girls, like the boys of this school, have lower average marks than the Horace Mann School pupils. In this group (Chart XIc) the final of all is 81 per cent, but 5 of these girls are one year in advance of their normal grade for their age, if we use our previous hypothesis that a year of school is equivalent to a grade. In general, the average marks of these 5 girls are higher than the others.

There are 3 girls (Nos. 2, 5, and 7) who are retarded by grade, and No. 2 is below median stature, No. 5 shows marked arrest from 12 to 18, and has low average marks. No. 7 shows arrest from 14 and has low marks. As a rule the children above median height are in normal grade or accelerated.

3. SCHOOL STANDING AND GROWTH IN WEIGHT.

In his investigations on the physical basis of precocity and dullness, Dr. Porter[1] found on the basis of age and grade distribution that "precocious are heavier, and dull children lighter, than the mean child of the same age. This establishes a basis of precocity and dullness." The basis of precocity, for Porter, was found in the unusually favorable physical development. Boas[2] found several serious objections to this conclusion, and maintained that "children who remain out of school for a long time will lag behind; vigorous ones will advance more rapidly." This is no doubt true, but the number of such children among the many thousands studied by Porter would have little effect in vitiating general conclusions. Another objection raised by Boas, which is very significant, was that these children were not "dull," but "retarded," and a retarded child may develop and become quite "bright."

In an attempt to ascertain the relation of precocity to physical development, Boas used data collected by Dr. G. M. West at Toronto, who, in turn, used the teacher's judgment in regard to the child's brightness. The results were diametrically opposed to Porter. Here, again, there is an apparent contradiction, due to an attempt to correlate "brightness," when based on the teacher's judgment, with physical development, instead of correlating a more definite criterion of a particular aspect, as evidenced by school standing, mental tests, or some similar measuring scale, with physical development. Porter's mistake was in concluding that mental development depended upon

[1] See Porter (in bibliography), 4th reference. [2] See Boas, 12th reference.

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physical growth, instead of seeing that physical growth and mental growth are correlated; Boas's mistake was to assume that a teacher's estimate of a child's "brightness" at one age could be used as a standard for measuring mental development or mental maturity through several years.

MacDonald, in his Washington studies, used the teachers' estimate of brightness as a basis, and Smedley in his study of Chicago children used the age and grade and both found that "bright" children are taller than "dull" ones. This conclusion is also claimed by Gratsianoff and Sack in Russia, but Gilbert [1] discovered no constant correlation between height and mental ability.

The same conclusions hold for weight as for height; Porter and Smedley found a positive correlation, West a negative correlation, and Gilbert no constant relationship.

The important conclusion here was long ago anticipated by Porter, but on account of the doubtful attitude of these other investigators toward his result, it has received little or no attention. He very wisely says, "No child whose weight *or height* [2] is below the average (*median or norm*) for its age should be permitted to enter a school grade beyond the average of its age except after such a physical examination as shall make it probable that the child's strength is equal to the strain."

4. SCHOOL STANDING AND GROWTH IN LUNG CAPACITY.

That there is a possible correlation between school standing and lung capacity is indicated by the fact that, if the 5 boys or 5 girls with the greatest lung capacity are selected, the average school marks for these are invariably above the average school marks of any 5 with the lowest average lung capacity. This holds true for each group, but it is, however, not a complete or accurate test, since all cases are not included and the grades and lung capacity are both materially influenced by the age of the boy or girl.

If the average lung capacity for the same period included within the school standing is taken, it throws some light on the correlations of the two variables, but only when the chronological and physiological ages are taken into consideration, since the lung capacity increases with age and the marks tend, on the average, to decrease in the upper grades. It is apparent, then, that any attempt at correlation will have to take into consideration the median lung capacity for different ages and the median mark for the different ages within the same group. But since there are so few individuals included within a grade and since the marks vary so little for the same individuals from grade to grade, it is sufficient to take the average mark for each individual and compare it with the final

[1] See Gilbert, 2d reference.

[2] The words in italics are the writer's.

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average mark of all the individuals from each school and determine whether the individual is above or below average school mark, making proper allowance for retardation and acceleration.

The median lung capacity for boys and girls for different ages are those previously found for the Francis W. Parker School and the University of Chicago elementary and high school and are approximately the same as those used at the Horace Mann School by Dr. Wood.

Selecting the 5 in Chart Ic whose standing is above average mark for the group, Nos. 1, 3, 11, 12, 14, the first 4 are above the median in lung capacity; No. 4 is retarded by grade, which will help to explain his high average mark. No. 7 also has high lung capacity, but he is in advance of his normal grade.

Of those below the average grade, No. 4 has good lung capacity but entered this school late and apparently poorly prepared. No. 10 has comparatively low lung capacity and is below average mark and retarded in grade.

Those whose marks are above the average in Chart IIc are Nos. 1, 4, 5, 6, 7, 9, and 15. Nos. 1, 4, 5, 7, and 9 are above the median in lung capacity; Nos. 6 and 15 are retarded one year in grade, which would help to explain their higher average mark.

Of those below average mark Nos. 2 and 3 are above median lung capacity, Nos. 8, 11, and 12 are below median lung capacity, No. 10 is below median lung capacity part of the time and below grade, No. 13 below median lung capacity but above grade, and No. 14 below median lung capacity and grade.

In Chart IIIc those below the average mark, 81 per cent, are Nos. 2, 3, 8, 10, 11, 12, 13, and 14, and all are below median lung capacity except No. 10, who is slightly above median and two years retarded by grade; Nos. 2 and 3 are above median lung capacity but are in normal grade and only 1 per cent below the average mark.

Those above the average school mark in Chart IVc are Nos. 4, 5, and 9. The first two girls are above median lung capacity, and No. 9 is below with no apparent cause.

Those below average school mark are Nos. 1, 2, and 7. No. 1 is above the median lung capacity, and Nos. 2 and 7 are above during most of the school course. No. 2 is two grades above normal, and No. 7 is one grade below and frequently absent.

Those above average mark in this group (Chart Vc) are Nos. 3, 5, and 12. No. 3 is above median lung capacity, but below grade; No. 5 is above and No. 12 about median lung capacity. Those below average mark are Nos. 2, 4, 6, 7, 9, and 11a. Nos. 2, 4, 6, and 7 are above and Nos. 9 and 11 below median lung capacity. Nos. 2 and 4 are above average grade, which would help explain their low mark. No. 6 had a record for but one year; No. 9 is retarded, and No. 11 in advance of his grade one year.

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Those above average mark in this group (Chart VIc) are Nos. 2, 3, 6, and 9. Nos. 2, 3, and 6 are above median lung capacity, and No. 9

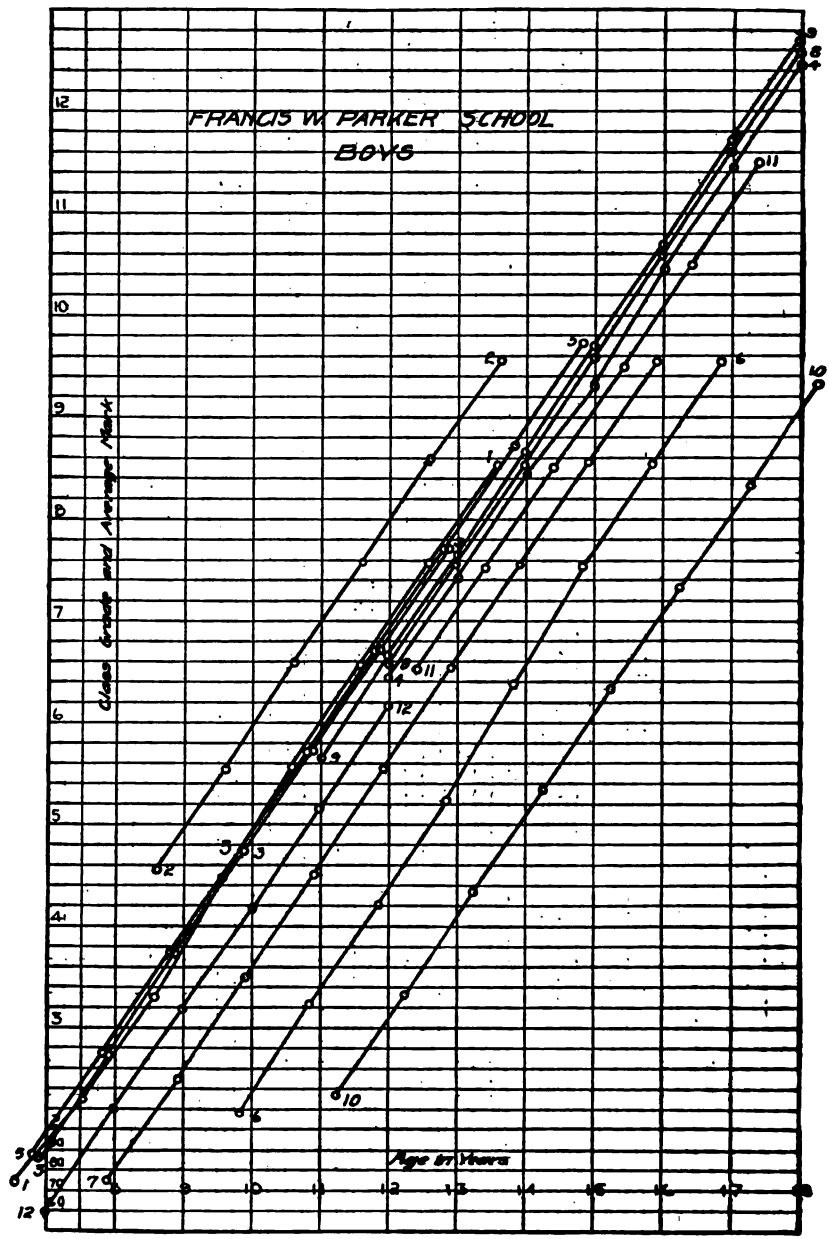

FIG. 37.—(Chart VIIIc) School standing curves for Francis W. Parker School boys.

is above median lung capacity until 11 years of age. Those below average mark are Nos. 4, 5, 7, 8, 10, 11, 12, and 13. No. 4 is above median lung capacity, but is one year in advance of his normal grade;

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No. 5 is above median lung capacity, but gradually drops in school standing; No. 7 is below median lung capacity and below grade;

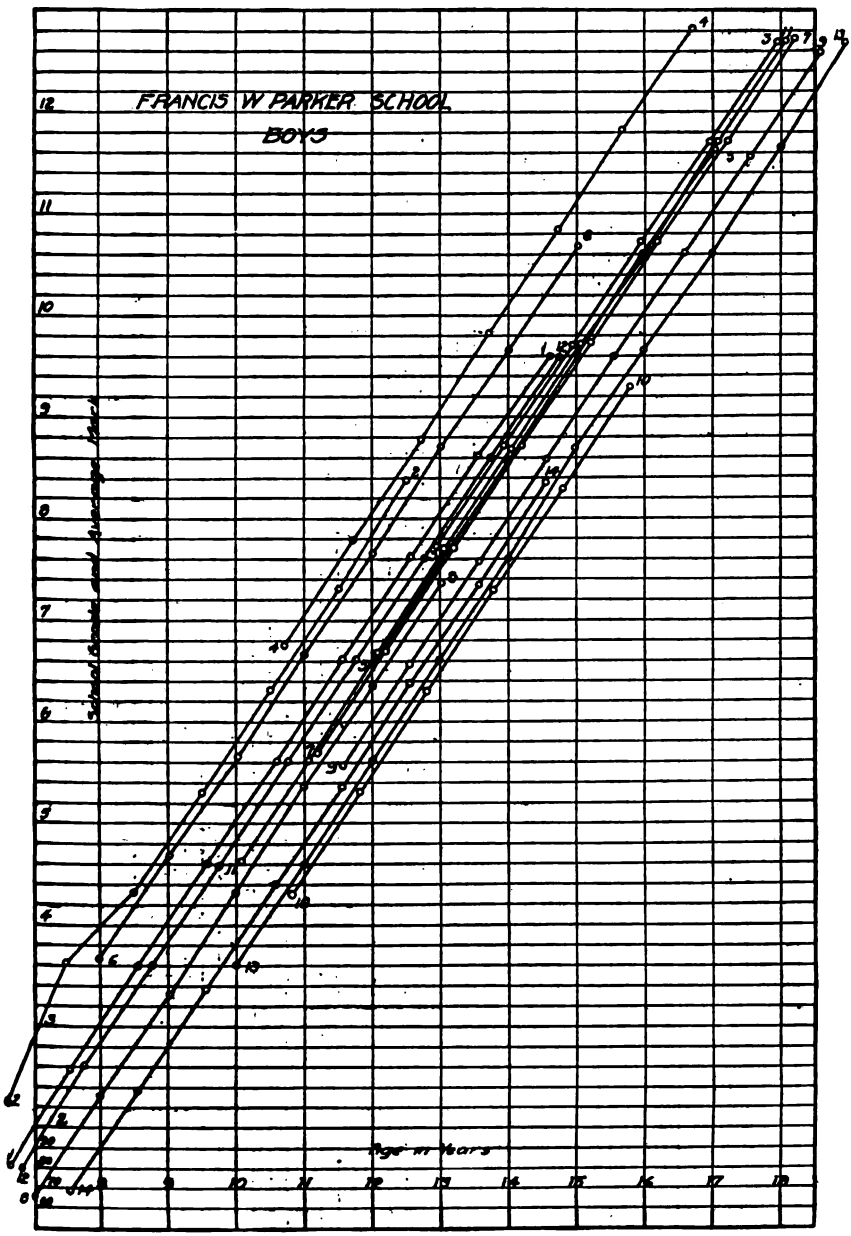

FIG. 38.—(Chart IXc) School standing curves for Francis W. Parker School boys.

No. 8 is above median lung capacity, but slightly below average mark; No. 10 is below median lung capacity, below grade, and below average mark; Nos. 11, 12, and 13 are below median lung capacity.

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In Chart VIIc those above average mark are Nos. 2, 3, and 8. Nos. 2 and 3 are above and No. 8 below median lung capacity, but No. 8

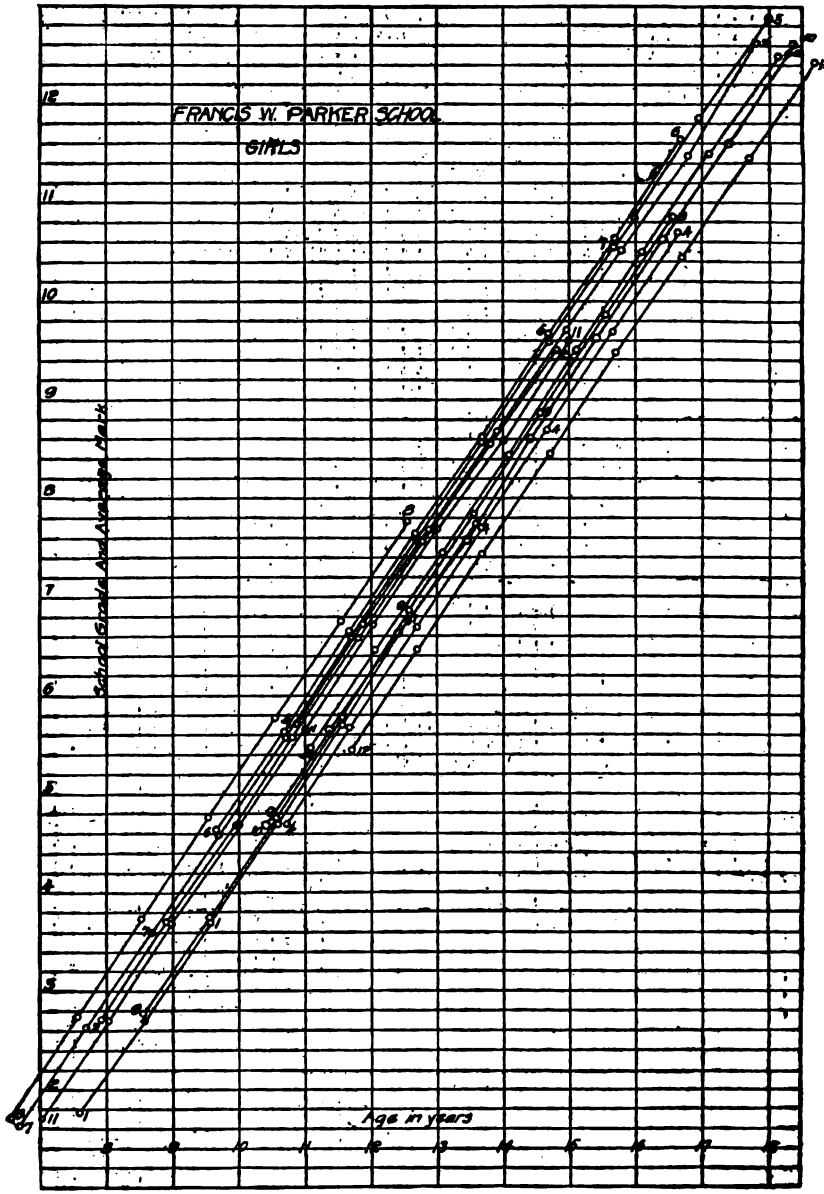

FIG. 39.—(Chart Xc) School standing curves for Francis W. Parker School girls.

is two years below normal grade at 12 years, which helps to explain the high mark. Those below average mark are Nos. 5, 9, 10, and 11. In Chart VIIIc those above average mark are Nos. 3, 2, 5, 8, and 9.

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Nos. 2, 3, 5, and 8 are above median lung capacity and No. 9 above during later school life. No. 2 is also above school grade.

Those below average school mark are Nos. 4, 6, 10, and 12. No. 4 is above median lung capacity for the first part of the school work

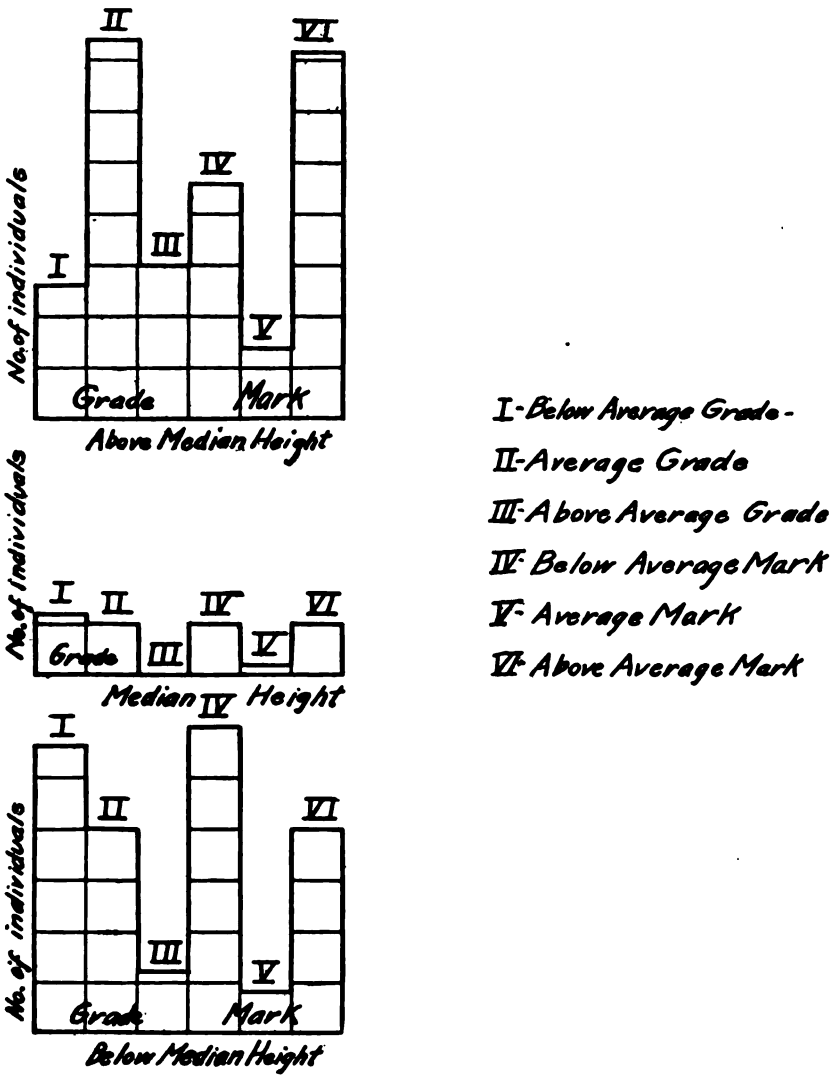

FIG. 40.—Height and school standing.

and two grades retarded, but is later above in lung capacity and gradually increases in average mark. No. 10 is below median lung capacity and is three grades retarded; No. 12 is below median lung capacity.

In this group (Chart IXc) there are 4 boys below the average school mark for the Francis W. Parker School boys. No. 2 is one grade

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above normal, but has uniformly low standing. Nos. 10 and 14 are retarded one grade, No. 14 is slightly above median lung capacity, and No. 10 starts high, but drops below median lung capacity, and No. 13 is below.

In this group of Francis W. Parker girls (Chart Xc) Nos. 1, 3, 4, 5, 8, 9, and 11 are above average mark. Nos. 1, 3, 4, 5, 8, and 9 show many fluctuations, but on the whole are above median lung capacity, and No. 11 is below median lung capacity. Nos. 1, 4, and 9 are below normal grade. Of those below average mark, Nos. 2, 6, 6a, 7, 10, and 12 are slightly above median lung capacity and in normal grade; Nos. 6, 10, and 12 are below median lung capacity; and No. 7 generally above median lung capacity.

Those above average mark are Nos. 1, 4, 6, 8, and 9. Nos. 1, 4, and 8 are above median lung capacity; No. 6 is above, but takes a decided drop at the last measurement; No. 9 is about median lung capacity. Those below average mark are Nos. 2, 3, 5, and 7. No. 2 is below median lung capacity; No. 3 above; No. 5 usually below; No. 7 above and retarded one grade. As a rule, the children above the median in lung capacity are in normal grade or accelerated. This is a little more marked than in height or weight.

Checking the individuals whose curves have been plotted for age, height, weight, lung capacity, school grade, and school mark, and giving the results graphically, it will be seen that the majority of children above median height are in or above normal grade and above the average in marks. Of those below median height the majority of children are below or in normal grade and below average mark.

Figure 40 refers to the relation between median height and school standing. The coefficients of correlation between the height, weight, lung capacity, and school standing for all individuals are being worked out, but are not included in this bulletin.

5. EDUCATIONAL CONCLUSIONS WITH COROLLARIES.

The general conclusion to this section of our study is that if pedagogical age be accepted as a fair equivalent in these three efficient schools to mental development, the tall, heavy boys and girls with good lung capacity are older physiologically and further along in their stages toward mental maturity as evidenced by school progress than the short, light boys and girls.

The main educational corollaries which logically follow from this study would require that our school systems, public and private, be graded on the physiological age and the accompanying stage of mental maturity of boys and girls in place of the chronological age, as is now done. This would require that tall, healthy children of accelerated physiological age be encouraged to proceed through

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school as rapidly as possible within the limits of thoroughness, and that the small, light children of retarded physiological development be kept below or in the normal grade doing supplementary work, since these short, light pupils are immature mentally, although in many instances precocious in brightness. It also follows from the study that rapid, healthy growth favors good mental development, and therefore the healthy growing child should have plenty of physical and mental exercise.

The Binet measuring scale for intelligence, as is well known, is based on a two dimensional scale—that of chronological age and mental age—but does not take into account the third dimension, or physiological age, which according to the results of this investigation is closely correlated with the mental age, as evidenced by school standing. If this conclusion is correct, and it certainly follows from the data included in this study, would it not be possible for a child of immature physiological growth to be of normal mental growth for his physiological age and still to fall short of the mental age required by the tests for his chronological age in years? For a complete and comprehensive system of mental tests to be used as a measuring scale of intelligence, it will be necessary to go further and supplement the Binet tests and include the essential criteria for determining the physiological age of the child. We have now reached a stage in our knowledge of child development when we can begin to search intelligently for these physiological criteria in order to formulate more adequate tests as measuring scales for intelligence and for school standing. The grading of our schools must be adjusted to fit the mental and physiological age of the child in place of its chronological age, which is not fairly representative of the other two ages.

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III. STATISTICAL

(A) INDIVIDUAL INCREMENTS OF GROWTH

TABLE 13.—*Increments of growth in height for a group of*

No.	7 years.			7½ years.			8 years.			8½ years.			9 years.			9½ years.			10 years.		
	Height.	Increment, 6–7 years.	Per cent gain.	Height.	Increment, 6½–7½ years.	Per cent gain.	Height.	Increment, 7–8 years.	Per cent gain.	Height.	Increment, 7½–8½ years.	Per cent gain.	Height.	Increment, 8–9 years.	Per cent gain.	Height.	Increment, 8½–9½ years.	Per cent gain.	Height.	Increment, 9–10 years.	Per cent gain.
	Cm.	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*	
101	109.2						112.9	3.7	3.3	115.0			116.0	3.1	2.7	119.7	4.7	4.1	121.0	5.0	4.3
102				109.5						114.1	4.6	4.2				116.9	2.8	2.5			
103	111.6	4.6	4.3				116.0	4.4	3.9				121.0	5.0	4.3				125.0	4.0	3.3
104				112.0	3.3	3.0				116.7	4.7	4.2				121.2	4.5	3.9			
105				112.7						116.8	4.1	3.6				121.2	4.4	3.8			
106	112.0						115.8	3.8	3.4				117.0	1.2	1.0				124.8	7.8	6.7
107				113.4						118.2	4.8	4.2				123.0	4.8	4.1			
108							114.1						123.4	9.3	8.2				127.0	3.6	2.9
109	114.8			119.4	6.7	5.9	120.2	5.4	4.7	120.2	.8	.6				126.1	5.9	4.9	128.7		
110							120.0						122.1	2.1	1.8				127.1	5.0	4.1
111				115.4			120.7						125.0	4.3	3.6				130.2	5.2	4.2
112	116.2	5.0	4.5				121.6	5.4	4.6				125.6	4.0	3.3				130.0	4.4	3.5
113	116.3						121.8	5.5	4.7				126.1	4.3	3.5	132.0					
114	116.6	6.0	5.4				122.0	5.4	4.6				128.6	6.6	5.4				133.6	5.0	3.9
115				117.2	5.2	4.6				122.7	5.5	4.7				129.6	6.9	5.6			
116	118.0						121.4	3.4	2.9				125.5	4.1	3.4				130.4	4.9	3.9
117	118.0						121.0	3.0	2.5										130.1		
118				118.5	4.3	3.8				123.0	4.5	3.8				127.8	4.8	3.9	132.0		
119				118.4						124.6	6.2	5.2				129.4	4.8	3.9			
120				119.0	4.0	3.5				123.0	4.0	3.4				128.2	5.2	4.2			
121				119.8						123.0	3.2	2.7				128.2	5.2	4.2			
122	120.2									124.5						130.4	5.9	4.8			
123				120.0						123.5	3.5	2.9				129.0	5.5	4.5			
124				121.3	5.8	5.0				126.3	5.0	4.1	129.7			131.6	5.3	4.2			
125							126.0						129.6	3.6	2.9				135.3	5.7	4.4
Av.		5.2	4.7		4.9	4.3		4.4	3.9		4.2	3.6		4.3	3.6		5.5	4.2		5.1	4.1
Av. var.		.5			1.0			.9			.9			1.4			.8			.7	
126	121.4						129.2	7.8	6.4				133.3	4.1	3.2				138.6	5.3	4.0
127	122.9						127.7	4.8	3.9				132.8	4.1	3.7				137.4	4.6	3.5
128	123.0						128.7	5.7	4.6				135.3	6.6	5.1				141.1	5.8	4.3
129				124.0						130.0	6.0	4.8				134.6	4.6	3.5			
130	124.5			129.3									133.8			137.1			140.0	6.2	4.6
131	125.0									130.1						134.5	4.4	3.4			
132				125.0									132.6			137.2					
133	125.5						133.6	8.1	6.5				138.0	4.4	3.3	143.5					
134				125.5			127.3														
135				125.6						134.4	8.8	7.0				139.2	4.8	3.6			
136				125.6			131.6						136.6	5.0	3.8				141.4	4.8	3.5
137				125.7									131.8			134.7					
138	125.8						131.2						138.6	7.4	5.6				144.0	5.4	3.9
139				125.9			129.7						138.4	8.7	6.7	138.4					
140				125.9						132.1	6.2	4.9				137.4	5.3	4.0			
141				126.0						131.5	5.5	4.4				135.0	3.5	2.7			
142				126.0	7.2	6.1	129.4			130.2	4.2	3.3							139.0		
143	126.4			132.1						139.1	7.0	5.3							147.0		
144				127.5												138.3					
145				131.3	5.9	4.7				136.8	5.5	4.2				143.2	6.4	4.7			
146	132.0						138.4	6.4	4.9				144.2	5.8	4.2	147.4			150.3	6.1	4.2
147	132.4	8.0	6.4				136.4	4.0	3.0				141.6	5.2	3.8				147.5	5.9	4.2
148	128.3			133.0									135.6			140.9			141.3	5.7	4.2
149				133.3						139.4	6.1	4.6				142.1	2.7	1.9			
150	139.6	9.6	7.4				145.1	5.5	3.9										153.6		
Av.	121.8	8.8	6.9	122.7	6.5	5.9	125.7	6.0	4.7	125.9	6.2	4.8	130.5	6.5	4.9	132.6	4.5	3.4	135.9	5.5	4.0
Av. var.		.8			.7			1.2			.9			1.8			.9			.5	

[1] The tables for the boys' heights (4 and 5) may be found on pages 26–29.

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MATERIAL.

IN HEIGHT, WEIGHT, AND LUNG CAPACITY.

50 boys with consecutive measurements from 7 to 13 years of age.[1]

10½ years.			11 years.			11½ years.			12 years.			12½ years.			13 years.			No.
Height.	Increment, 9½–10½ years.	Per cent gain.	Height.	Increment, 10–11 years.	Per cent gain.	Height.	Increment, 10½–11½ years.	Per cent gain.	Height.	Increment, 11–12 years.	Per cent gain.	Height.	Increment, 11½–12½ years.	Per cent gain.	Height.	Increment, 12–13 years.	Per cent gain.	
Cm.	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		
.....	.....	.....	123.6	2.6	2.1	125.6	.....	.....	127.5	3.9	3.2	129.7	4.1	3.3	131.2	3.7	2.9	101.
121.4	4.5	3.8	.....	.....	.....	125.6	4.2	3.4	.....	.....	.....	128.4	2.8	2.3	.....	.....	.....	102.
.....	.....	.....	129.5	4.5	3.6	.....	.....	.....	132.3	2.8	2.2	.....	.....	.....	.....	.....	.....	103.
125.0	3.8	3.1	.....	.....	.....	128.7	3.7	3.0	.....	.....	.....	133.2	4.5	3.5	.....	.....	.....	104.
126.0	4.8	4.0	.....	.....	.....	131.6	5.6	4.4	.....	.....	.....	135.3	3.7	2.8	.....	.....	.....	105.
.....	.....	.....	128.7	3.9	3.1	.....	.....	.....	132.9	4.2	3.3	.....	.....	.....	137.0	4.1	3.1	106.
128.4	5.4	4.4	.....	.....	.....	132.6	4.2	3.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	107.
.....	.....	.....	130.1	3.1	2.4	.....	.....	.....	134.2	4.1	3.2	.....	.....	.....	139.4	5.2	3.9	108.
.....	.....	.....	.....	.....	.....	130.5	.....	.....	138.4	.....	.....	138.9	8.4	6.4	143.5	5.1	3.7	109.
.....	.....	.....	132.3	5.2	4.1	.....	.....	.....	135.4	3.1	2.3	.....	.....	.....	139.9	4.5	3.3	110.
.....	.....	.....	133.6	3.4	2.6	.....	.....	.....	137.6	4.0	3.0	.....	.....	.....	142.1	4.5	3.3	111.
.....	.....	.....	134.2	4.2	3.2	.....	.....	.....	138.0	3.8	2.8	.....	.....	.....	141.6	3.6	2.6	112.
125.7	3.7	2.8	.....	.....	.....	140.9	5.2	3.8	.....	.....	.....	145.7	4.8	3.4	.....	.....	.....	113.
.....	.....	.....	138.9	5.3	4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	148.5	.....	.....	114.
133.2	3.6	2.8	.....	.....	.....	137.5	4.3	3.2	.....	.....	.....	142.3	4.8	3.5	.....	.....	.....	115.
.....	.....	.....	135.5	5.1	3.9	.....	.....	.....	139.3	3.8	2.8	.....	.....	.....	146.0	6.7	4.8	116.
.....	.....	.....	131.0	.9	.7	133.0	.....	.....	.....	.....	.....	138.1	5.1	3.8	139.7	.....	.....	117.
.....	.....	.....	134.2	2.2	1.7	.....	.....	.....	137.4	3.2	2.4	.....	.....	.....	140.2	2.8	2.0	118.
134.1	4.7	3.6	.....	.....	.....	138.0	3.9	2.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	119.
133.9	5.7	4.4	.....	.....	.....	139.2	5.3	4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	120.
133.0	4.8	3.7	.....	.....	.....	135.9	2.9	2.2	.....	.....	.....	141.8	5.9	4.3	.....	.....	.....	121.
133.9	3.5	2.7	.....	.....	.....	138.1	4.2	3.1	.....	.....	.....	146.0	7.9	5.7	.....	.....	.....	122.
133.2	4.2	3.3	.....	.....	.....	137.1	3.9	2.9	.....	.....	.....	140.9	3.8	2.8	.....	.....	.....	123.
134.7	3.1	2.4	139.3	.....	.....	.....	.....	.....	143.4	4.1	2.9	.....	.....	.....	150.1	6.7	4.7	124.
.....	.....	.....	139.1	3.8	2.8	.....	.....	.....	144.2	5.1	3.7	.....	.....	.....	149.6	5.4	3.7	125.
.....	4.3	3.4	.....	3.7	2.9	.....	4.3	3.3	.....	3.8	2.9	.....	5.0	3.8	.....	4.8	3.5	Av.
.....	.7	.....	.....	1.0	.....	.....	.6	.....	.....	.4	.....	.....	1.2	.....	.....	1.0	.....	Av. var.
.....	.....	.....	144.1	5.5	4.0	148.1	.....	.....	.....	.....	.....	155.0	6.9	4.7	.....	.....	.....	126.
.....	.....	.....	141.4	4.0	2.9	.....	.....	.....	146.0	4.6	3.3	.....	.....	.....	150.5	4.5	3.1	127.
.....	.....	.....	147.1	6.0	4.3	.....	.....	.....	156.5	9.4	6.4	.....	.....	.....	166.7	10.2	6.5	128.
141.4	6.8	5.0	.....	.....	.....	144.0	2.6	1.8	.....	.....	.....	148.9	4.9	3.4	.....	.....	.....	129.
143.5	6.4	4.7	145.1	5.1	3.6	.....	.....	.....	150.0	4.9	3.4	155.5	.....	.....	.....	.....	.....	130.
141.2	6.7	5.0	147.0	.....	.....	.....	.....	.....	150.9	3.9	2.6	.....	.....	.....	158.1	7.2	4.8	131.
141.4	4.2	3.1	.....	.....	.....	145.2	3.8	2.7	.....	.....	.....	146.6	1.4	1.0	.....	.....	.....	132.
148.1	4.6	3.2	.....	.....	.....	152.2	4.1	2.8	.....	.....	.....	159.9	7.7	5.1	.....	.....	.....	133.
138.6	.....	.....	142.0	.....	.....	144.6	6.0	4.3	146.8	4.8	3.4	149.0	4.4	3.0	.....	.....	.....	134.
143.6	4.4	3.2	.....	.....	.....	148.6	5.0	3.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	135.
.....	.....	.....	146.8	5.4	3.8	.....	.....	.....	151.9	5.1	3.5	.....	.....	.....	.....	.....	.....	136.
139.6	4.9	3.6	.....	.....	.....	144.4	4.8	3.4	.....	.....	.....	149.1	4.7	3.3	.....	.....	.....	137.
.....	.....	.....	151.0	6.0	4.2	.....	.....	.....	156.6	5.6	3.7	.....	.....	.....	.....	.....	.....	138.
.....	.....	.....	147.3	.....	.....	.....	.....	.....	150.8	3.5	2.4	151.6	.....	.....	155.7	4.9	3.2	139.
142.2	4.8	3.5	.....	.....	.....	147.3	5.1	3.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	140.
140.2	5.2	3.9	.....	.....	.....	144.5	4.3	3.1	.....	.....	.....	148.9	4.4	3.0	.....	.....	.....	141.
141.5	.....	.....	145.0	6.0	4.3	147.5	6.0	4.2	149.8	4.8	3.3	150.8	3.3	2.2	153.1	3.3	2.2	142.
150.5	.....	.....	.....	.....	.....	156.2	5.7	3.8	.....	.....	.....	161.0	4.8	3.1	.....	.....	.....	143.
143.2	4.9	3.5	.....	.....	.....	147.1	3.9	2.7	.....	.....	.....	152.5	5.4	3.7	.....	.....	.....	144.
148.2	5.0	3.5	.....	.....	.....	152.5	4.3	2.9	.....	.....	.....	159.7	7.2	4.7	.....	.....	.....	145.
153.1	5.7	3.9	156.3	6.0	4.0	.....	.....	.....	161.2	4.9	3.1	.....	.....	.....	168.9	7.7	4.8	146.
.....	.....	.....	152.1	4.6	3.1	.....	.....	.....	158.1	6.0	3.9	.....	.....	.....	163.9	5.8	3.7	147.
144.2	3.3	2.3	145.6	4.3	3.0	.....	.....	.....	150.3	4.7	3.2	153.6	.....	.....	.....	.....	.....	148.
145.7	3.6	2.5	.....	.....	.....	149.0	3.3	2.3	.....	.....	.....	152.1	3.1	2.1	.....	.....	.....	149.
155.2	.....	.....	157.8	4.2	2.7	.....	.....	.....	161.8	4.0	2.5	.....	.....	.....	167.6	5.8	3.6	150.
139.1	5.0	3.6	140.6	5.2	3.6	140.9	4.5	3.2	145.2	5.1	3.5	146.7	4.9	3.3	149.2	6.2	3.9	Av.
.....	.8	.....	.....	.8	.....	.....	.8	.....	.....	.9	.....	.....	1.3	.....	.....	1.9	.....	Av. var.

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TABLE 14.—*Increments of growth in height for a group of 50*

No.	12 years.			12½ years.			13 years.			13½ years.			14 years.		
	Height.	Increment, 11–12 years.	Per cent gain.	Height.	Increment, 11½–12½ years.	Per cent gain.	Height.	Increment, 12–13 years.	Per cent gain.	Height.	Increment, 12½–13½ years.	Per cent gain.	Height.	Increment, 13–14 years.	Per cent gain.
	Cm.	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*	
151	134.9			137.2						149.0	11.8	8.6			
152	134.0	5.6	4.4				137.9	3.9	2.9	140.6					
153	134.6			136.6	3.8	2.9	139.4	4.8	3.6	142.0	5.4	4.0			
154	135.4						145.3	9.9	7.3				149.6	4.3	3.0
155	136.3	5.1	3.9				146.1	9.8	7.2				153.4	7.3	5.0
156				137.2			140.8						144.1	3.3	2.3
157	137.9	2.5	1.8				144.0	6.1	4.4						
158							137.9						141.6	3.7	2.7
159	137.2						142.0	4.8	3.5	144.0					
160	138.6						143.6	5.0	3.6				149.1	5.5	3.8
161				138.3						143.5	5.2	3.8			
162				139.4	2.3	1.7				147.0	7.6	5.5			
163	139.6	3.6	2.6				143.7	4.1	2.9				152.9	9.2	6.4
164	140.0						146.6	6.6	4.2				155.2	8.6	5.9
165				140.1	5.7	4.2				147.2	7.1	5.1			
166	141.6						152.0	10.4	7.3	156.2					
167				141.6	2.3	1.7				148.7	7.1	5.0	153.9		
168	142.5	4.0	2.9	144.5						149.0	4.5	3.1			
169	142.2						147.2	5.0	3.5				156.4	8.2	5.6
170				142.0	2.9	2.1	144.2						148.4	4.2	2.9
171	142.0	9.0	6.7				145.2	8.2	2.2				155.0	9.8	6.7
172				143.4	4.8	3.5				147.7	4.3	3.0			
173				144.6	5.7	4.1	156.0						159.5	3.5	2.2
174				145.4	4.4	3.1				149.7	4.3	3.0			
175				145.4	6.1	4.4				151.7	6.3	4.3			
Average		5.0	3.7		4.2	3.1		6.1	4.4		6.4	4.5		6.1	4.2
Average var.		1.6			1.2			2.1			1.6			2.2	
176	140.5						142.4	1.9	1.3				148.5	6.1	4.3
177	141.7			145.5			146.8	5.1	3.6	148.9	3.4	2.3	150.0	3.2	2.2
178	143.8						149.0	5.2	3.6				153.5	4.5	3.0
179	144.9	4.3	3.1				148.2	3.3	2.3				156.6	8.4	5.7
180				145.7	4.7	3.3				150.6	4.9	3.4			
181	145.9	4.1	2.9				152.0	6.1	4.2				155.4	3.4	2.2
182				146.3	3.3	2.3				152.0	5.7	3.9			
183	146.8						151.6	4.8	3.3				154.8	3.2	2.1
184				146.5	4.6	3.2				151.4	4.9	3.3	155.1		
185	146.3						153.0	6.7	4.6				160.7	7.7	5.0
186				147.6	4.6	3.2	151.2								
187				148.0						156.1	8.1	5.5			
188				149.4	5.3	3.7									
189				149.3	4.8	3.3				153.2	3.9	2.6			
190	149.0						154.8	5.8	3.9				165.1	10.3	6.7
191				150.7	3.0	2.0				157.3	6.6	4.4			
192				151.2	2.9	2.0				160.5	9.3	6.2			
193				151.6	5.9	4.0				161.5	9.9	6.5			
194	151.1						156.7	5.6	3.7				162.9	6.2	4.0
195							152.1						160.2	8.1	5.3
196				152.5	5.4	3.7				155.6	3.1	2.0			
197				153.9	5.9	4.0	158.0						165.3	7.3	4.6
198				154.2	9.7	6.7				161.6	7.4	4.8			
199				155.7	6.3	4.2	160.7						169.2	8.5	5.3
200				158.5	6.5	4.3				163.4	4.9	3.1			
Average	141.2	4.2	3.0	146.3	5.2	3.6	147.9	5.0	3.4	151.1	6.0	4.0	155.0	6.4	4.2
Average var.		.1			1.2			1.1			1.9			2.0	

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boys with consecutive measurements from 12 to 17 years of age.

14½ years.			15 years.			15½ years.			16 years.			16½ years.			17 years.			No.
Height.	Increment, 13½–14½ years.	Per cent gain.	Height.	Increment, 14–15 years.	Per cent gain.	Height.	Increment, 14½–15½ years.	Per cent gain.	Height.	Increment, 15–16 years.	Per cent gain.	Height.	Increment, 15½–16½ years.	Per cent gain.	Height.	Increment, 16–17 years.	Per cent gain.	
Cm.	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		*Cm.*	*Cm.*		
155.6	6.6	4.4	160.2	....	....	164.5	8.9	5.7	.....	....	....	168.4	3.9	2.4	170.6	....	....	151.
147.2	6.6	4.7	.....	....	....	.....	....	....	.....	....	....	.....	....	....	164.5	....	....	152.
146.3	4.3	3.0	149.0	....	....	153.4	7.1	4.9	159.0	10.0	6.7	161.5	8.1	5.3	170.0	11.0	6.9	153.
.....	....	....	154.0	4.4	2.9	.....	....	....	161.7	7.7	5.0	.....	....	....	171.4	9.7	6.0	154.
.....	....	....	158.5	5.1	3.3	.....	....	....	160.5	2.0	1.3	.....	....	....	161.5	1.0	.6	155.
145.3	....	....	.....	....	....	150.6	5.3	3.6	154.9	....	....	160.0	9.4	6.2	165.6	10.7	6.9	156.
.....	....	....	161.1	....	....	.....	....	....	165.1	4.0	2.5	.....	....	....	167.1	2.0	1.2	157.
.....	....	....	146.2	4.6	3.2	.....	....	....	153.6	7.4	5.1	.....	....	....	160.9	7.3	4.8	158.
148.0	4.0	2.8	.....	....	....	153.0	5.0	3.4	.....	....	....	.....	....	....	.....	....	....	159.
153.7	....	....	.....	....	....	.....	....	....	165.3	....	....	.....	....	....	170.5	5.2	3.1	160.
147.0	3.5	2.4	.....	....	....	151.3	4.3	2.9	.....	....	....	158.4	7.1	4.7	.....	....	....	161.
154.9	7.9	5.4	161.1	....	....	164.2	9.3	6.0	167.7	6.6	4.1	168.9	4.7	2.9	172.9	5.2	3.1	162.
.....	....	....	162.6	9.7	6.3	.....	....	....	168.0	5.4	3.3	.....	....	....	171.2	3.2	1.9	163.
.....	....	....	164.0	8.8	5.7	.....	....	....	166.9	2.9	1.8	.....	....	....	169.1	2.2	1.3	164.
157.5	10.3	7.0	.....	....	....	164.1	6.6	4.2	.....	....	....	168.3	4.2	2.6	.....	....	....	165.
162.6	6.4	4.1	.....	....	....	164.6	2.0	1.2	.....	....	....	.....	....	....	165.8	....	....	166.
.....	....	....	162.7	8.8	5.7	.....	....	....	167.3	4.6	2.8	.....	....	....	169.5	2.2	1.3	167.
155.6	6.6	4.4	.....	....	....	162.4	6.8	4.4	.....	....	....	166.5	4.1	2.5	.....	....	....	168.
161.9	....	....	.....	....	....	.....	....	....	171.6	....	....	172.7	....	....	.....	....	....	169.
.....	....	....	153.2	4.8	3.2	.....	....	....	158.2	5.0	3.3	.....	....	....	168.2	10.0	6.3	170.
.....	....	....	159.0	4.0	2.6	.....	....	....	164.2	5.2	3.3	.....	....	....	166.9	2.7	1.6	171.
152.9	5.2	3.5	.....	....	....	163.1	10.2	6.7	.....	....	....	169.2	6.1	3.7	.....	....	....	172.
.....	....	....	163.9	4.4	2.8	.....	....	....	.....	....	....	.....	....	....	.....	....	....	173.
155.2	5.5	3.7	.....	....	....	165.7	10.5	6.8	.....	....	....	171.5	5.8	3.5	.....	....	....	174.
159.2	7.5	4.9	.....	....	....	164.5	5.3	3.3	.....	....	....	167.3	2.8	1.7	.....	....	....	175.
.....	6.2	4.2	.....	6.1	4.0	.....	6.8	4.4	.....	5.5	3.6	.....	5.6	3.6	.....	5.6	3.5	Av.
.....	1.4	....	.....	2.0	....	.....	2.0	....	.....	1.7	....	.....	1.7	....	.....	3.2	....	Av.var.
153.5	....	....	158.3	9.8	6.6	166.6	13.1	8.5	167.6	9.3	5.9	.....	....	....	172.7	5.1	3.0	176.
.....	....	....	159.0	9.0	6.0	165.6	....	....	.....	....	....	.....	....	....	175.2	....	....	177.
157.2	....	....	.....	....	....	.....	....	....	169.2	....	....	172.0	....	....	.....	....	....	178.
.....	....	....	165.8	9.2	5.9	.....	....	....	169.9	4.1	2.5	.....	....	....	171.0	1.1	.7	179.
157.9	7.3	4.8	.....	....	....	167.6	9.7	6.1	.....	....	....	174.2	6.6	3.9	.....	....	....	180.
.....	....	....	164.1	8.7	5.6	.....	....	....	173.0	8.9	5.4	.....	....	....	177.9	4.9	2.8	181.
.....	....	....	.....	....	....	.....	....	....	.....	....	....	172.6	....	....	.....	....	....	182.
.....	....	....	158.2	3.4	2.2	.....	....	....	164.7	6.5	4.1	.....	....	....	173.5	8.8	5.3	183.
158.7	7.3	4.8	164.6	9.5	6.1	167.8	9.1	5.7	.....	....	....	174.5	6.7	4.0	177.0	....	....	184.
.....	....	....	169.8	9.1	5.7	.....	....	....	175.3	5.5	3.2	.....	....	....	177.4	2.1	1.2	185.
162.0	....	....	164.0	....	....	.....	....	....	.....	....	....	.....	....	....	180.4	1.5	.8	186.
167.0	10.9	7.0	169.6	....	....	.....	....	....	.....	....	....	174.1	....	....	174.3	....	....	187.
167.1	....	....	.....	....	....	171.3	4.2	2.5	.....	....	....	173.8	2.5	1.5	.....	....	....	188.
159.3	6.1	4.0	.....	....	....	169.5	10.2	6.4	.....	....	....	176.1	6.6	3.9	.....	....	....	189.
.....	....	....	173.8	8.7	5.3	.....	....	....	179.0	5.2	3.0	.....	....	....	181.1	2.1	1.2	190.
163.9	6.6	4.2	.....	....	....	173.1	9.2	5.6	.....	....	....	177.7	4.6	2.7	.....	....	....	191.
166.6	2.1	1.3	.....	....	....	171.1	2.5	1.5	.....	....	....	176.0	4.9	2.9	.....	....	....	192.
167.1	5.6	3.5	.....	....	....	171.4	4.3	2.6	.....	....	....	173.4	2.0	1.2	.....	....	....	193.
.....	....	....	172.4	9.5	5.8	.....	....	....	180.4	8.0	4.6	.....	....	....	183.0	2.6	1.4	194.
162.5	....	....	.....	....	....	163.9	1.4	.9	.....	....	....	164.9	1.0	.6	.....	....	....	195.
159.5	3.9	2.5	.....	....	....	166.3	6.8	4.3	.....	....	....	176.0	9.7	5.8	.....	....	....	196.
.....	....	....	172.3	7.0	4.2	.....	....	....	177.5	5.2	3.0	.....	....	....	.....	....	....	197.
168.2	6.6	4.1	.....	....	....	170.4	2.2	1.3	.....	....	....	171.0	.6	.4	.....	....	....	198.
.....	....	....	.....	....	....	177.2	....	....	.....	....	....	178.9	1.7	1.0	.....	....	....	199.
168.4	5.0	3.1	.....	....	....	177.5	9.1	5.4	.....	....	....	182.6	5.1	2.9	.....	....	....	200.
157.9	6.1	3.9	161.9	8.4	5.3	165.4	6.8	4.2	167.1	6.6	4.5	171.2	4.3	2.6	171.4	3.5	2.1	Av.
.....	1.6	....	.....	1.3	....	.....	3.2	....	.....	1.6	....	.....	2.3	....	.....	2.1	....	Av.var.

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TABLE 15.—*Increments of growth in weight for a group of*

[Weight and increment

No.	7 years.			7½ years.			8 years.			8½ years.			9 years.			9½ years.			10 years.		
	Weight.	Increment, 6-7 years.	Per cent gain.	Weight.	Increment, 6½-7½ years.	Per cent gain.	Weight.	Increment, 7-8 years.	Per cent gain.	Weight.	Increment, 7½-8½ years.	Per cent gain.	Weight.	Increment, 8-9 years.	Per cent gain.	Weight.	Increment, 8½-9½ years.	Per cent gain.	Weight.	Increment, 8-10 years.	Per cent gain.
1	41.9	....	....	....	....	....	44.5	2.6	6.2	....	....	....	46.4	1.9	4.2	46.3	....	....	48.5	2.1	5.4
2	39.2	....	....	....	....	....	45.1	5.9	15.0	....	....	....	46.6	1.5	3.3	....	....	....	53.2	6.6	14.0
3	55.3	....	....	....	....	....	55.5	.2	.4	....	....	....	62.6	7.1	13.0	....	....	....	63.4	.2	1.2
4	....	....	....	40.5	....	....	....	....	....	46.0	5.5	13.5	48.5	....	....	....	....	....	54.0	5.5	11.3
5	....	....	....	42.0	....	....	....	....	....	....	....	....	48.5	....	....	51.8	....	....	....	....	....
6	....	....	....	41.0	....	....	....	....	....	44.2	3.2	7.8	45.7	....	....	48.9	4.7	10.6	....	....	....
7	....	....	....	44.0	....	....	....	....	....	46.6	2.6	5.9	....	....	....	47.5	.9	1.9	....	....	....
8	....	....	....	46.2	....	....	....	....	....	50.6	4.4	9.5	....	....	....	58.7	8.1	16.0	....	....	....
9	....	....	....	48.0	....	....	....	....	....	54.3	6.3	13.1	....	....	....	63.5	9.2	16.9	....	....	....
10	51.8	....	....	....	....	....	55.0	3.2	6.2	....	....	....	61.0	6.0	11.0	....	....	....	64.7	3.7	6.1
11	....	....	....	46.0	6.5	16.5	....	....	....	52.3	6.3	14.0	....	....	....	56.0	3.7	7.1	....	....	....
12	45.8	....	....	48.0	....	....	....	....	....	52.5	4.5	9.4	....	....	....	60.6	8.1	15.4	....	....	....
13	....	....	....	46.3	....	....	47.8	....	....	50.8	4.0	8.6	52.7	4.9	10.3	54.5	4.2	8.3	....	....	....
14	42.9	....	....	45.0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	53.0	....	....
15	....	....	....	46.5	3.5	8.1	47.8	....	....	50.1	3.6	7.7	54.3	6.5	13.6	....	....	....	61.0	6.7	12.3
16	43.3	6.3	1.6	....	....	....	46.6	3.3	7.6	....	....	....	51.0	4.4	9.4	....	....	....	57.2	6.2	12.2
17	57.5	....	....	....	....	....	62.3	4.8	8.4	....	....	....	64.8	2.5	4.0	....	....	....	[1]53.9	[1]9.1	[1]14.0
18	....	....	....	40.5	4.7	13.1	....	....	....	45.9	5.4	13.3	....	....	....	50.8	4.9	10.7	....	....	....
19	44.0	....	....	44.0	....	....	....	....	....	....	....	....	51.5	....	....	52.8	....	....	52.9	1.4	2.7
20	47.0	....	....	....	....	....	....	....	....	55.3	....	....	....	....	....	59.5	4.2	7.6	....	....	....
21	50.5	....	....	....	....	....	56.8	6.3	12.5	57.2	....	....	....	....	....	64.5	....	....	68.5	....	....
22	....	....	....	48.0	....	....	52.0	....	....	....	....	....	57.3	5.3	10.2	....	....	....	61.0	3.7	6.5
23	....	....	....	48.0	1.0	2.1	....	....	....	48.8	.8	1.7	....	....	....	50.0	1.2	2.5	52.5	....	....
24	....	....	....	55.5	....	....	61.0	....	....	....	....	....	62.5	1.5	2.5	....	....	....	72.0	9.5	15.2
25	50.0	....	....	....	....	....	54.5	4.5	9.0	....	....	....	63.6	9.1	16.6	....	....	....	75.3	11.7	18.4
Av.	....	6.3	1.6	....	3.9	10.0	....	3.9	8.2	....	4.2	10.4	....	4.6	8.9	....	4.9	9.7	....	5.6	10.0
Av.var.	....	.0	....	....	1.7	....	....	1.5	....	....	1.3	....	....	1.9	....	....	2.1	....	....	2.7	....
26	45.3	....	....	....	....	....	49.5	4.2	9.3	....	....	....	55.7	6.2	12.5	....	....	....	61.2	5.5	9.9
27	....	....	....	50.3	....	....	48.0	....	....	51.0	.7	1.4	51.2	3.2	6.7	55.3	4.3	8.4	....	....	....
28	55.1	....	....	55.0	....	....	51.3	−3.8	−6.9	....	....	....	62.3	11.0	21.4	64.5	....	....	66.1	....	....
29	....	....	....	46.0	....	....	....	....	....	50.5	4.5	9.8	....	....	....	58.0	7.5	14.9	63.5	....	....
30	48.5	....	....	....	....	....	54.0	5.5	11.3	....	....	....	57.0	3.0	5.6	....	....	....	68.0	11.0	19.3
31	....	....	....	51.5	3.2	6.6	....	....	....	59.5	8.0	15.5	....	....	....	66.0	6.5	10.9	....	....	....
32	52.3	....	....	....	....	....	53.5	1.2	2.3	....	....	....	57.6	4.1	7.7	61.0	....	....	....	....	....
33	....	....	....	53.0	4.7	9.7	....	....	....	67.5	14.5	27.4	....	....	....	74.4	6.9	10.2	....	....	....
34	54.0	....	....	....	....	....	60.6	6.6	12.2	63.0	....	....	....	....	....	66.0	3.0	4.8	....	....	....
35	....	....	....	42.5	....	....	49.6	....	....	....	....	....	56.5	6.9	13.9	....	....	....	61.6	5.1	9.0
36	....	....	....	53.5	3.7	7.4	....	....	....	58.0	4.5	8.4	....	....	....	62.5	4.5	7.8	70.2	....	....
37	....	....	....	50.5	....	....	55.5	....	....	....	....	....	62.0	6.5	11.8	....	....	....	67.7	5.7	9.2
38	....	....	....	53.5	....	....	....	....	....	58.7	5.2	9.7	....	....	....	66.6	7.9	13.4	....	....	....
39	....	....	....	63.0	....	....	....	....	....	72.3	9.3	14.8	....	....	....	83.9	11.6	14.6	....	....	....
40	56.3	....	....	....	....	....	....	....	....	....	....	....	67.8	....	....	....	....	....	71.0	3.2	4.7
41	52.9	....	....	52.9	....	....	59.5	6.6	12.5	61.7	8.8	16.6	64.0	4.5	7.6	....	....	....	67.7	3.7	5.8
42	....	....	....	52.5	....	....	....	....	....	60.0	7.5	14.3	....	....	....	72.0	12.0	20.0	....	....	....
43	52.9	....	....	59.4	....	....	58.0	5.1	9.6	....	....	....	60.0	2.0	3.4	....	....	....	63.8	3.8	6.3
44	....	....	....	58.0	....	....	62.7	....	....	63.9	5.9	10.2	67.2	4.5	7.2	....	....	....	76.0	9.4	14.0
45	....	....	....	52.2	3.4	7.0	....	....	....	57.6	5.4	10.3	....	....	....	62.7	5.1	8.9	....	....	....
46	....	....	....	67.5	4.0	6.3	....	....	....	76.0	8.5	12.6	....	....	....	88.0	12.0	15.8	....	....	....
47	....	....	....	56.8	....	....	....	....	....	67.5	10.7	18.8	....	....	....	81.2	13.7	20.3	....	....	....
48	....	....	....	48.8	2.8	6.1	50.5	....	....	51.8	3.0	6.2	55.3	4.8	9.5	57.1	5.3	10.2	....	....	....
49	54.5	....	....	....	....	....	59.5	5.0	9.2	....	....	....	77.7	18.2	30.6	....	....	....	85.4	7.7	9.8
50	69.0	....	....	72.6	8.5	13.1	79.7	10.7	15.5	83.0	10.4	14.3	....	....	....	....	....	....	101.0	....	....
Av.	50.5	....	....	50.5	4.3	8.0	54.7	4.6	8.3	57.1	7.1	12.8	57.5	6.2	11.5	61.5	7.7	12.4	64.8	6.1	10.9
Av.var.	....	....	....	....	1.3	....	....	2.6	....	....	2.7	....	....	2.9	....	....	2.9	....	....	2.2	....

[1] Decrease.

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50 girls with consecutive measurements, from 7 to 13 years of age.

[Expressed in pounds.]

10½ years.			11 years.			11½ years.			12 years.			12½ years.			13 years.			No.
Weight.	Increment, 9½–10½ years.	Per cent gain.	Weight.	Increment, 10–11 years.	Per cent gain.	Weight.	Increment, 10½–11½ years.	Per cent gain.	Weight.	Increment, 11–12 years.	Per cent gain.	Weight.	Increment, 11½–12½ years.	Per cent gain.	Weight.	Increment, 12–13 years.	Per cent gain.	
51.4	5.1	1.1	.....	.....	.....	57.0	5.6	10.9	62.8	.....	.....	65.5	8.5	14.9	74.5	11.7	18.6	1.
.....	.....	.....	56.5	3.3	6.2	.....	.....	.....	68.6	12.1	21.4	.....	.....	.....	77.2	8.6	12.5	2.
.....	.....	.....	83.6	20.2	30.3	.....	.....	.....	82.9	−.7	−.8	.....	.....	.....	84.7	1.8	2.2	3.
.....	.....	.....	58.0	4.0	7.4	.....	.....	.....	65.3	7.3	12.6	.....	.....	.....	76.6	11.3	17.3	4.
57.3	5.5	10.6	.....	.....	.....	64.0	6.7	11.7	.....	.....	.....	76.6	12.6	19.7	.....	.....	.....	5.
48.8	−.1	−2.0	.....	.....	.....	.....	.....	.....	59.5	.....	.....	.....	.....	.....	64.0	4.5	7.6	6.
57.7	10.2	21.5	.....	.....	.....	55.0	−2.7	−4.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.
64.5	5.8	9.9	.....	.....	.....	83.2	18.7	28.9	.....	.....	.....	90.4	7.2	8.6	.....	.....	.....	8.
68.2	4.7	7.4	.....	.....	.....	75.2	7.1	10.4	.....	.....	.....	85.4	10.2	10.3	.....	.....	.....	9.
.....	.....	.....	74.4	9.7	15.0	.....	.....	.....	82.9	8.5	11.4	.....	.....	.....	84.2	1.3	1.6	10.
60.5	4.5	8.0	.....	.....	.....	68.4	7.9	13.1	.....	.....	.....	78.8	10.4	15.2	.....	.....	.....	11.
.....	.....	.....	.....	.....	.....	78.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.
61.0	6.5	12.0	59.0	.....	.....	63.8	2.8	4.6	72.5	13.5	2.3	74.5	10.7	15.2	85.0	12.5	17.2	13.
55.1	.....	.....	60.5	7.5	14.2	.....	.....	.....	65.5	5.0	8.3	.....	.....	.....	74.9	9.4	14.4	14.
.....	.....	.....	65.5	4.5	7.4	71.8	.....	.....	82.3	16.8	25.6	85.3	13.5	18.8	95.0	12.7	15.4	15.
.....	.....	.....	64.5	7.3	12.8	.....	.....	.....	72.4	7.9	12.2	.....	.....	.....	86.9	14.5	20.0	16.
.....	.....	.....	77.2	23.3	43.2	.....	.....	.....	86.2	9.0	11.6	.....	.....	.....	.....	.....	.....	17.
56.9	6.1	12.0	.....	.....	.....	64.0	7.1	12.5	.....	.....	.....	75.9	11.9	18.6	.....	.....	.....	18.
57.9	5.1	9.7	58.8	5.9	11.2	.....	.....	.....	70.0	11.2	19.0	73.5	.....	.....	81.3	11.3	16.1	19.
73.0	.....	.....	84.0	.....	.....	.....	.....	.....	100.1	.....	.....	.....	.....	.....	117.2	.....	.....	20.
69.5	5.0	7.7	74.5	6.0	8.8	77.8	8.3	11.9	84.8	10.3	13.8	87.5	9.7	12.5	102.8	18.0	21.2	21.
.....	.....	.....	71.1	10.1	16.6	.....	.....	.....	79.2	8.1	11.4	.....	.....	.....	89.3	10.1	12.7	22.
.....	.....	.....	62.0	9.5	18.1	.....	.....	.....	71.1	9.1	14.7	.....	.....	.....	85.9	14.8	20.9	23.
.....	.....	.....	76.1	4.1	5.7	.....	.....	.....	79.8	3.7	4.9	.....	.....	.....	102.7	22.9	28.6	24.
.....	.....	.....	84.0	8.7	11.4	98.6	.....	.....	101.4	17.4	20.7	.....	.....	.....	116.6	15.2	14.9	25.
.....	5.3	8.9	.....	8.9	14.3	.....	6.8	11.0	.....	9.5	2.6	.....	10.5	14.9	.....	11.4	15.2	Av.
.....	1.4	.....	.....	4.2	.....	.....	3.3	.....	.....	3.7	.....	.....	1.5	.....	.....	4.2	.....	Av. var.
.....	.....	.....	67.1	6.0	9.8	.....	.....	.....	78.8	11.7	17.4	.....	.....	.....	95.7	16.9	21.4	26.
59.5	4.2	7.6	61.0	.....	.....	.....	.....	.....	.....	.....	.....	68.2	.....	.....	69.9	.....	.....	27.
72.8	8.3	12.9	83.1	17.0	25.7	.....	.....	.....	87.5	4.4	5.3	92.3	.....	.....	95.2	7.7	8.9	28.
.....	.....	.....	71.5	8.0	12.6	.....	.....	.....	82.3	10.8	15.1	.....	.....	.....	101.2	18.9	23.0	29.
.....	.....	.....	81.5	13.5	19.9	.....	.....	.....	94.2	12.7	15.6	106.9	.....	.....	.....	.....	.....	30.
75.0	9.0	13.6	.....	.....	.....	81.4	6.4	8.5	.....	.....	.....	88.4	7.0	8.6	.....	.....	.....	31.
70.6	9.6	15.7	73.0	.....	.....	.....	.....	.....	86.4	13.4	18.4	96.0	.....	.....	.....	.....	.....	32.
76.8	2.4	3.2	.....	.....	.....	91.7	14.9	19.4	.....	.....	.....	98.5	6.8	7.4	.....	.....	.....	33.
75.0	9.0	13.6	.....	.....	.....	86.0	11.0	14.7	.....	.....	.....	99.0	13.0	15.1	.....	.....	.....	34.
.....	.....	.....	63.8	2.2	3.6	.....	.....	.....	75.2	11.4	17.9	.....	.....	.....	78.3	3.1	4.1	35.
.....	.....	.....	73.5	3.3	4.7	76.5	.....	.....	.....	.....	.....	87.3	10.8	14.1	90.4	.....	.....	36.
.....	.....	.....	73.7	6.0	8.9	.....	.....	.....	81.6	7.9	10.7	.....	.....	.....	91.0	9.4	11.5	37.
71.1	4.5	6.8	.....	.....	.....	87.6	16.6	23.3	.....	.....	.....	103.8	16.2	18.5	.....	.....	.....	38.
95.3	11.4	13.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	127.6	.....	.....	.....	.....	.....	39.
.....	.....	.....	77.4	6.4	9.0	.....	.....	.....	85.4	8.0	10.3	.....	.....	.....	92.8	7.4	8.7	40.
72.0	.....	.....	75.3	7.6	11.2	82.0	10.0	13.9	86.2	10.9	14.5	.....	.....	.....	101.8	15.6	18.1	41.
73.0	1.0	1.4	.....	.....	.....	85.4	12.4	17.0	.....	.....	.....	95.0	9.6	11.2	.....	.....	.....	42.
.....	.....	.....	68.6	5.2	8.2	.....	.....	.....	82.5	13.9	20.3	89.0	.....	.....	.....	.....	.....	43.
.....	.....	.....	85.8	9.2	2.0	92.8	.....	.....	97.5	11.7	12.6	99.7	6.9	7.4	.....	.....	.....	44.
71.0	8.3	13.2	.....	.....	.....	80.5	9.5	13.4	.....	.....	.....	88.4	7.9	9.8	.....	.....	.....	45.
99.2	11.2	12.7	.....	.....	.....	116.1	16.9	17.0	.....	.....	.....	121.7	5.6	4.8	.....	.....	.....	46.
94.2	13.0	16.1	.....	.....	.....	104.5	10.3	10.9	.....	.....	.....	124.9	20.4	19.5	.....	.....	.....	47.
59.5	2.4	4.2	63.5	.....	.....	64.0	4.5	7.6	71.8	8.3	13.1	.....	.....	.....	.....	.....	.....	48.
.....	.....	.....	94.6	9.2	10.8	.....	.....	.....	104.1	9.5	10.0	.....	.....	.....	117.0	12.9	11.0	49.
.....	.....	.....	.....	.....	.....	137.6	.....	.....	147.9	.....	.....	.....	.....	.....	.....	.....	.....	50.
68.4	7.2	10.4	71 7	7.8	10.5	74.9	11.3	14.6	82.8	10.3	13.9	91.5	10.4	11.6	90.5	11.5	13.3	Av.
.....	3.4	.....	.....	3 0	.....	.....	3.2	.....	.....	2.1	.....	.....	3.7	.....	.....	4.4	.....	Av. var.

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TABLE 16.—*Increments of growth in weight for a group of 50*

[Weight and increment

No.	12 years.			12½ years.			13 years.			13½ years.			14 years.			14½ years.		
	Weight.	Increment, 11–12 years.	Per cent gain.	Weight.	Increment, 11½–12½ years.	Per cent gain.	Weight.	Increment, 12–13 years.	Per cent gain.	Weight.	Increment, 12½–13½ years.	Per cent gain.	Weight.	Increment, 13–14 years.	Per cent gain.	Weight.	Increment, 13½–14½ years.	Per cent gain.
51	49.8	....	....	53.0	....	....	....	....	....	60	..7.0	.13.2	....	....	....	72.5	12.5	20.8
52	77.0	8.5	12.4	....	....	....	88.4	11.4	14.8	....	....	....	97.9	9.5	10.7	80.7	16.7	26.1
53	....	....	....	57.0	....	....	....	....	....	64.0	7.0	12.3	....	....	....	....	....	....
54	....	....	....	60.0	5.0	9.1	65.5	....	....	....	....	....	78.0	12.5	19.1	....	....	....
55	....	....	....	58.0	4.5	8.4	60.3	....	....	....	....	....	69.0	8.7	14.4	92.8	5.8	6.6
56	66.8	2.3	3.6	70.5	....	....	....	....	....	87.0	16.5	23.4	....	....	....	80.5	[1]6.5	[1]7.5
57	61.7	6.7	12.2	68.3	16.6	10.7	63.7	2.0	3.2	....	....	....	73.7	10.0	15.7	101.6	11.0	12.0
58	....	....	....	76.3	14.8	24.1	....	....	....	90.6	14.3	18.6	....	....	....	....	....	....
59	71.0	9.7	15.8	....	....	....	85.0	14.0	19.7	....	....	....	90.0	5.0	5.5	....	....	....
60	83.0	4.4	5.6	....	....	....	92.5	9.5	11.4	107.5	....	....	....	....	....	118.2	10.7	10.3
61	110.0	13.5	14.0	....	....	....	122.8	12.8	11.6	....	....	....	132.0	9.2	7.5	....	....	....
62	64.7	3.7	6.1	69.9	2.8	4.2	....	....	....	84.0	14.1	20.2	88.1	....	....	....	....	....
63	64.8	....	....	....	....	....	77.3	12.5	19.3	83.8	....	....	85.9	8.6	11.1	90.9	7.1	8.4
64	65.5	10.4	18.9	....	....	....	79.0	13.5	20.6	85.5	....	....	90.4	11.4	14.4	93.0	7.5	8.7
65	....	....	....	73.3	5.3	7.8	80.5	....	....	....	....	....	94.0	13.5	16.7	....	....	....
66	79.8	11.5	16.8	....	....	....	94.5	14.7	18.4	107.8	....	....	113.8	19.3	20.5	126.5	18.7	17.3
67	....	....	....	....	....	....	....	....	....	104.0	....	....	111.3	....	....	....	....	....
68	70.0	3.5	5.3	75.0	....	....	....	....	....	82.0	7.0	9.3	....	....	....	102.9	20.9	25.5
69	73.0	....	....	....	....	....	....	....	....	82.5	....	....	....	....	....	94.0	11.5	13.8
70	....	....	....	78.1	7.7	10.9	....	....	....	98.1	20.0	25.6	....	....	....	110.0	11.9	12.1
71	79.5	....	....	....	....	....	92.8	13.3	16.7	....	....	....	110.0	17.2	18.3	....	....	....
72	76.0	5.0	7.0	....	....	....	86.9	10.9	14.3	....	....	....	96.4	9.5	10.9	....	....	....
73	95.0	17.0	21.8	....	....	....	107.8	12.8	13.5	....	....	....	116.2	8.4	7.7	111.8	— .7	— .6
74	....	....	....	104.0	....	....	....	....	....	112.5	8.5	8.1	....	....	....	....	....	....
75	88.0	13.0	17.3	....	....	....	96.8	8.8	10.0	....	....	....	102.6	5.8	5.9	....	....	....
Av.	....	18.4	12.1	....	8.1	10.7	....	11.4	14.4	....	11.8	16.4	....	10.6	12.7	....	9.8	1.8
Av. var.	....	3.8	....	....	4.3	....	....	2.4	....	....	4.4	....	....	3.0	....	....	5.5	....
76	80.3	....	....	....	....	....	95.5	15.2	18.9	....	....	....	107.4	11.9	12.5	....	....	....
77	72.3	6.3	9.5	....	....	....	83.8	11.5	15.9	....	....	....	90.2	6.4	7.6	....	....	....
78	66.6	7.6	12.9	....	....	....	75.5	8.9	13.4	84.3	....	....	....	....	....	97.0	12.7	15.0
79	....	....	....	78.0	10.0	14.7	....	....	....	90.4	12.4	15.9	....	....	....	102.7	12.3	13.6
80	....	....	....	76.8	10.7	16.2	....	....	....	79.4	2.6	3.4	83.7	....	....	86.0	6.6	8.3
81	100.3	....	....	....	....	....	104.0	3.7	3.6	....	....	....	126.0	22.0	21.1	....	....	....
82	67.8	3.9	6.1	....	....	....	83.0	15.2	22.4	86.5	....	....	91.6	8.6	10.4	99.8	13.3	15.3
83	69.4	9.6	16.1	....	....	....	77.2	7.8	11.2	85.6	....	....	89.9	12.7	16.4	....	....	....
84	97.0	....	....	....	....	....	119.0	22.0	22.7	....	....	....	127.2	8.2	6.9	....	....	....
85	66.7	....	....	....	....	....	....	....	....	....	....	....	83.0	....	....	85.7	....	....
86	79.3	6.3	8.6	....	....	....	93.2	13.9	17.5	....	....	....	103.4	10.2	10.9	....	....	....
87	....	....	....	73.5	4.7	6.8	81.8	....	....	....	....	....	96.5	14.7	17.9	....	....	....
88	....	....	....	....	....	....	109.3	....	....	....	....	....	123.6	14.3	13.0	123.0	....	....
89	79.5	4.0	5.3	....	....	....	90.4	10.9	13.7	....	....	....	....	....	....	103.5	....	....
90	....	....	....	86.5	12.0	16.1	....	....	....	104.9	18.4	21.3	....	....	....	120.6	15.7	14.9
91	....	....	....	88.3	....	....	....	....	....	105.5	17.2	19.4	107.8	....	....	121.3	15.8	15.9
92	92.8	10.8	13.2	....	....	....	104.8	12.0	12.0	....	....	....	115.0	10.2	9.7	120.0	....	....
93	117.0	....	....	120.5	....	....	123.3	6.3	5.4	119.5	—1.0	— .8	125.8	2.5	2.0	....	....	....
94	....	....	....	102.3	20.3	24.8	....	....	....	101.5	— .8	— .7	118.0	....	....	....	....	....
95	94.0	18.7	9.4	....	....	....	105.4	11.4	12.1	....	....	....	116.4	11.0	10.4	....	....	....
96	96.5	8.3	9.4	....	....	....	109.3	12.8	13.3	114.8	....	....	112.4	3.1	2.8	115.9	1.1	1.0
97	83.8	....	....	....	....	....	98.0	14.2	....	....	....	....	112.2	14.2	14.4	....	....	....
98	....	....	....	127.0	....	....	....	....	....	147.8	20.8	16.4	....	....	....	162.1	14.3	9.6
99	....	....	....	105.5	11.2	11.9	....	....	....	110.2	4.7	4.6	....	....	....	111.5	1.3	1.1
100	....	....	....	103.3	11.3	12.3	....	....	....	124.3	21.0	20.3	....	....	....	135.0	10.7	8.6
Av.	79.3	8.4	10.1	82.	11.5	14.7	91.8	11.8	14.0	96.4	11.8	11.3	102.3	10.7	11.1	105.8	10.4	10.3
Av. var.	....	3.1	....	....	2.9	....	....	3.2	....	....	8.1	....	....	3.7	....	....	4.4	....

[1] Decrease.

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girls with consecutive measurements, from 12 to 17 years of age.

expressed in pounds.]

15 years.			15½ years.			16 years.			16½ years.			17 years.			No.
Weight.	Increment, 14–15 years.	Per cent gain.	Weight.	Increment, 14½–15½ years.	Per cent gain.	Weight.	Increment, 15–16 years.	Per cent gain.	Weight.	Increment, 15½–16½ years.	Per cent gain.	Weight.	Increment, 16–17 years.	Per cent gain.	
			73.0	0.5	0.6	77.4			80.3	7.3	10.0				51.
117.3	19.4	19.8				121.0	3.7	3.2				122.3	1.3	1.1	52.
			87.6	6.9	8.5							103.4			53
97.2	19.2	24.5				101.2	4.0	4.1				99.9	−1.3	−1.3	54.
79.6	10.6	15.4				84.9	5.3	6.6				93.0	8.1	9.5	55.
			104.0	11.2	12.0				115.5	11.5	11.0				56.
85.9	12.2	16.5	87.2	6.7	8.3	97.0	11.1	12.6				100.0	3.0	3.3	57.
			103.8	2.2	2.1				111.3	7.5	7.2				58.
93.5	3.5	3.1				90.2	− 3.3	−3.5				94.4	4.2	4.6	59.
			118.3	.1	.1				115.2	− 3.1	−2.6				60.
145.9	13.9	10.5				144.1	− 1.8	−1.3							61.
98.0	9.9	10.1	103.5						112.5	9.0	8.6	114.2			62.
96.2	10.3	11.9				100.5	4.3	4.4	98.5						63.
97.4	7.0	7.7				106.0	8.6	8.8	107.0			112.3	6.3	5.9	64.
95.0	1.0	1.1				100.1	5.1	5.3				97.2	−2.9	−2.8	65.
122.8	10.0	8.7	132.3	5.8	4.6	136.3	12.5	10.0	140.0	7.7	5.8	148.0	11.7	8.6	66.
			111.7						117.2	5.5	4.9				67.
			113.3	10.4	10.1				126.0	12.7	11.2				68.
104.8						113.2	9.4	8.9				113.9	.7	.6	69.
			111.1	1.1	1.0				113.3	2.2	2.0				70.
115.5	5.5	5.0				127.2	11.7	10.1				127.2	.0	.0	71.
111.5	15.1	15.6				112.6	1.1	.9				117.9	5.3	4.7	72.
113.0	−3.2	−2.7				112.4	− .6	− .5				107.4	−5.0	−4.4	73.
			131.1	19.3	10.7				121.0	−10.1	−7.7				74.
109.1	6.5	6.3				112.9	2.7	2.4				119.2	6.4	5.6	75.
	9.4	10.2		6.4	5.8		4.9	4.8		5.0	5.0		2.9	2.7	Av.
	4.8			4.5			3.9			5.2			3.8		Av. var.
119.2	11.8	10.9				125.0	5.8	4.8				128.3	3.3	2.6	76.
105.9	16.7	88.4										118.8			77.
109.8			105.7	8.7	8.9	108.3	2.5	2.5	104.8	− .9	− .8				78.
			110.2	7.5	7.3				120.6	10.4	9.4				79.
			106.0	20.0	22.2				116.3	10.3	9.7				80.
138.3	12.3	9.8	132.6			125.4	−12.9	−9.7				134.9	9.4	7.5	81.
103.2	11.6	12.6				104.0	.8	7.7	103.5			105.5	1.5	1.5	82.
100.8	10.9	12.1				109.6	8.8	8.7				119.2	9.6	8.7	83.
130.7	3.5	2.7				124.7	− 6.0	−4.5				119.2	−5.5	−4.3	84.
91.2	8.2	9.9							100.7						85.
110.6	7.2	7.5				123.8	13.2	11.9				127.1	3.3	2.7	86.
103.0	6.5	6.7				108.0	5.0	4.8				109.1	1.1	1.0	87.
122.5	− .1	− .1	126.9	3.9	3.2				133.0	6.1	4.8	132.0			88.
104.0						113.0	9.0	8.6				121.3	8.3	7.3	89.
			119.9	− .7	− .6				125.0	5.1	4.2	129.5			90.
122.1	15.3	14.2	127.8	6.5	5.3				131.0	3.2	2.5				91.
						127.3			128.0						92.
						137.5			135.0			137.0			93.
126.7	8.7	7.4							139.0						94.
124.5	8.1	6.9	124.3						130.9	6.6	5.3	120.5	−3.0	−2.5	95.
121.3	8.9	7.9	124.9	9.9	7.7	123.5	2.2	1.8	116.3	− 6.6	5.3	139.3	15.8	11.8	96.
129.6	13.8	12.8				123.1	7.1	5.6							97.
			167.9	5.8	3.6				180.4	12.5	7.4				98.
			111.5	.0	.0				121.7	10.2	9.1				99.
			123.5	−1.5	−1.1				129.8	− 3.7	−2.7				100.
110.2	9.6	9.3	115.3	5.9	5.8	113.6	3.2	3.9	116.9	4.8	4.9	117.7	4.4	3.6	Av.
	3.4			4.4			5.9			5.0			5.1		Av. var.

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TABLE 17.—*Increments of growth in weight for a group of 50*

[Weight and increment

No.	7 years.			7½ years.			8 years.			8½ years.			9 years.			9½ years.			10 years.		
	Weight.	Increment, 6–7 years.	Per cent gain.	Weight.	Increment, 6½–7½ years.	Per cent gain.	Weight.	Increment, 7–8 years.	Per cent gain.	Weight.	Increment, 7½–8½ years.	Per cent gain.	Weight.	Increment, 8–9 years.	Per cent gain.	Weight.	Increment, 8½–9½ years.	Per cent gain.	Weight.	Increment, 9–10 years.	Per cent gain.
101	42.5	....	....	....	....	....	48.4	5.9	13.9	47.1	....	....	51.4	3.0	6.2	53.0	5.9	12.5	54.3	2.9	5.6
102	....	....	....	38.6	....	....	....	....	....	43.0	4.4	11.4	....	....	....	44.3	1.3	3.0	....	....	....
103	41.8	3.3	8.6	....	....	....	44.4	2.6	6.2	....	....	....	49.1	4.7	10.6	....	....	....	53.0	3.9	7.9
104	....	....	....	43.0	3.5	8.9	....	....	....	45.4	2.4	5.6	....	....	....	50.7	5.3	11.7	....	....	....
105	....	....	....	46.2	....	....	....	....	....	49.7	3.5	7.6	....	....	....	56.1	6.4	12.9	....	....	....
106	37.5	....	....	....	....	....	42.3	4.8	12.8	....	....	....	46.0	3.7	8.7	....	....	....	48.7	2.7	5.9
107	....	....	....	46.3	....	....	....	....	....	44.0	−2.3	−5.0	....	....	....	49.3	5.3	12.0	....	....	....
108	....	....	....	....	....	....	45.0	....	....	....	....	....	50.5	5.5	12.2	....	....	....	54.8	4.3	8.5
109	44.4	....	....	46.3	2.3	5.2	46.3	1.9	4.3	47.4	1.1	2.4	....	....	....	53.0	5.6	11.8	54.8	....	....
110	....	....	....	....	....	....	48.5	....	....	....	....	....	53.0	4.5	9.3	....	....	....	62.2	9.2	17.4
111	....	....	....	41.8	....	....	46.8	....	....	....	....	....	52.1	5.3	11.3	....	....	....	55.2	3.1	6.0
112	43.0	4.7	12.3	....	....	....	47.5	4.5	10.5	....	....	....	52.6	5.1	10.7	....	....	....	57.6	5.0	9.5
113	47.5	....	....	....	....	....	52.3	4.8	10.2	....	....	....	57.8	5.5	10.5	61.8	....	....	....	....	....
114	42.0	5.5	15.1	....	....	....	47.5	5.5	13.1	....	....	....	53.0	5.5	11.6	....	....	....	57.2	4.2	7.9
115	....	....	....	47.8	6.8	16.6	....	....	....	53.5	5.7	11.9	....	....	....	58.0	4.5	8.4	....	....	....
116	47.0	....	....	....	....	....	52.0	5.0	10.6	....	....	....	63.3	11.3	21.7	....	....	....	66.5	3.2	5.6
117	41.9	....	....	....	....	....	44.1	2.2	5.3	....	....	....	....	....	....	....	....	....	51.5	....	....
118	....	....	....	47.0	2.0	4.4	....	....	....	51.0	4.0	8.5	....	....	....	54.5	3.5	6.9	59.9	....	....
119	....	....	....	53.9	....	....	....	....	....	57.2	3.3	6.1	....	....	....	62.0	4.8	8.4	....	....	....
120	....	....	....	46.0	6.0	15.0	....	....	....	48.8	2.8	6.1	....	....	....	53.9	5.1	10.5	....	....	....
121	....	....	....	44.0	....	....	....	....	....	48.0	4.0	9.1	....	....	....	51.7	3.7	7.7	....	....	....
122	48.0	....	....	....	....	....	....	....	....	52.0	....	....	....	....	....	55.0	3.0	5.8	....	....	....
123	....	....	....	44.5	....	....	....	....	....	49.5	5.0	11.2	....	....	....	54.6	5.1	10.3	....	....	....
124	....	....	....	49.6	3.1	6.7	....	....	....	56.8	7.2	14.5	57.7	....	....	59.4	2.6	4.6	....	....	....
125	....	....	....	....	....	....	58.3	....	....	....	....	....	67.1	8.8	15.1	....	....	....	74.0	6.9	10.3
Av.	....	4.5	12.0	....	4.0	9.5	....	4.1	9.7	....	3.4	7.5	....	5.7	11.6	....	4.4	9.0	....	4.5	8.5
Av.var	....	.8	....	....	1.7	....	....	1.3	....	....	1.6	....	....	1.6	....	....	1.2	....	....	1.5	....
126	53.0	....	....	....	....	....	62.0	9.0	17.0	....	....	....	65.5	3.5	5.6	....	....	....	80.0	14.5	22.1
127	50.8	....	....	....	....	....	53.0	2.2	4.3	....	....	....	59.5	6.5	12.3	....	....	....	66.0	6.5	10.9
128	49.0	....	....	....	....	....	57.0	8.0	16.3	....	....	....	65.4	8.4	14.7	....	....	....	72.5	7.1	10.9
129	....	....	....	50.8	....	....	....	....	....	64.0	7.2	12.7	....	....	....	69.9	5.9	9.2	....	....	....
130	57.3	....	....	61.5	....	....	....	....	....	....	....	....	65.4	....	....	68.0	....	....	71.4	6.0	9.2
131	55.0	....	....	....	....	....	....	....	....	60.0	....	....	....	....	....	67.5	7.5	12.5	....	....	....
132	....	....	....	52.0	....	....	....	....	....	....	....	....	58.0	....	....	59.3	....	....	....	....	....
133	65.6	....	....	....	....	....	76.0	10.4	15.9	....	....	....	80.5	4.5	5.9	87.3	....	....	....	....	....
134	....	....	....	48.5	....	....	57.8	....	....	....	....	....	....	....	....	....	....	....	....	....	....
135	....	....	....	49.1	....	....	....	....	....	58.7	9.6	19.6	....	....	....	62.3	3.6	6.1	....	....	....
136	....	....	....	50.8	7.0	16.0	53.0	....	....	....	....	....	58.0	5.0	9.4	....	....	....	65.1	7.1	12.2
137	....	....	....	55.2	....	....	....	....	....	....	....	....	57.2	....	....	60.0	....	....	....	....	....
138	51.7	....	....	....	....	....	57.4	5.7	11.0	....	....	....	65.8	8.4	14.6	....	....	....	74.6	8.8	13.4
139	....	....	....	54.5	....	....	63.8	....	....	....	....	....	66.7	2.9	4.5	62.5	....	....	....	....	....
140	....	....	....	56.8	....	....	....	....	....	63.6	6.8	12.0	....	....	....	70.2	6.6	10.4	....	....	....
141	....	....	....	55.5	....	....	....	....	....	62.4	6.9	12.4	....	....	....	67.7	5.3	8.5	....	....	....
142	....	....	....	59.5	3.2	5.7	69.1	....	....	76.2	16.7	28.1	....	....	....	....	....	....	93.3	....	....
143	49.0	....	....	55.8	....	....	....	....	....	65.0	9.2	16.5	....	....	....	....	....	....	72.8	....	....
144	....	....	....	56.0	....	....	....	....	....	62.0	6.0	10.7	....	....	....	70.0	8.0	12.9	....	....	....
145	....	....	....	55.3	4.3	8.4	....	....	....	63.5	8.2	14.8	....	....	....	70.0	6.5	10.2	....	....	....
146	61.6	....	....	....	....	....	70.6	9.0	14.6	....	....	....	79.6	9.0	12.7	80.7	....	....	88.7	9.1	11.6
147	63.0	8.0	14.5	....	....	....	65.5	2.5	4.0	....	....	....	72.5	7.0	10.7	....	....	....	83.2	10.7	14.8
148	55.0	....	....	57.0	....	....	....	....	....	....	....	....	63.5	....	....	67.5	....	....	70.2	6.7	10.6
149	....	....	....	69.0	....	....	....	....	....	74.0	5.0	7.2	....	....	....	84.0	10.0	13.5	....	....	....
150	77.0	14.5	23.2	....	....	....	72.1	−4.9	−6.4	....	....	....	....	....	....	....	....	....	84.3	....	....
Av.	46.9	11.3	18.9	51.3	4.8	10.0	54.2	5.2	9.6	55.9	8.4	14.9	60.4	6.1	10.0	62.1	6.7	10.4	66.9	8.5	12.8
Av.var	....	3.3	....	....	1.4	....	....	4.0	....	....	2.3	....	....	1.0	....	....	1.4	....	....	2.0	....

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boys with consecutive measurements, from 7 to 13 years of age.

expressed in pounds.]

10½ years.			11 years.			11½ years.			12 years.			12½ years.			13 years.			No.
Weight.	Increment, 10½–11 years.	Per cent gain.	Weight.	Increment, 10–11 years.	Per cent gain.	Weight.	Increment, 10½–11½ years.	Per cent gain.	Weight.	Increment, 11–12 years.	Per cent gain.	Weight.	Increment, 11½–12½ years.	Per cent gain.	Weight.	Increment, 12–13 years.	Per cent gain.	
.....	.....	.....	55.4	1.1	2.0	58.0	.....	.....	62.0	6.6	11.9	62.0	4.0	6.9	67.5	5.5	8.9	101.
49.0	4.7	10.6	.....	.....	.....	53.8	4.8	9.8	.....	.....	.....	55.7	1.9	3.5	.....	.....	.....	102.
.....	.....	.....	57.2	4.2	7.9	.....	.....	.....	60.3	3.1	5.4	.....	.....	.....	.....	.....	.....	103.
54.6	3.9	7.7	.....	.....	.....	59.8	5.2	9.5	.....	.....	.....	64.5	4.7	7.9	.....	.....	.....	104.
60.1	4.0	7.1	.....	.....	.....	70.4	10.3	17.1	.....	.....	.....	78.5	8.1	11.5	.....	.....	.....	105.
.....	.....	.....	53.0	4.3	8.8	.....	.....	.....	56.1	3.1	5.8	.....	.....	.....	64.0	7.9	14.1	106.
65.6	6.3	12.8	.....	.....	.....	67.9	2.3	4.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	107.
.....	.....	.....	57.4	2.6	4.7	.....	.....	.....	62.6	5.2	9.0	.....	.....	.....	67.9	5.3	8.5	108.
.....	.....	.....	.....	.....	.....	58.8	.....	.....	68.5	.....	.....	74.0	15.2	25.9	75.0	.....	.....	109.
.....	.....	.....	64.1	1.9	3.1	.....	.....	.....	68.9	4.8	7.5	.....	.....	.....	78.3	9.4	13.6	110.
.....	.....	.....	58.9	3.7	6.7	.....	.....	.....	64.5	5.6	9.5	.....	.....	.....	70.1	5.6	8.7	111.
.....	.....	.....	62.5	4.9	8.5	.....	.....	.....	67.1	4.6	7.4	.....	.....	.....	72.2	5.1	7.6	112.
65.8	4.0	6.5	.....	.....	.....	72.6	6.8	10.3	.....	.....	.....	86.2	13.6	18.7	.....	.....	.....	113.
.....	.....	.....	65.3	8.1	14.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	79.4	.....	.....	114.
61.6	3.6	6.2	.....	.....	.....	67.8	6.2	10.1	.....	.....	.....	76.3	8.5	12.5	.....	.....	.....	115.
.....	.....	.....	75.0	8.5	12.8	.....	.....	.....	86.0	11.0	14.7	.....	.....	.....	100.5	14.5	16.9	116.
.....	.....	.....	54.0	2.7	5.2	56.9	.....	.....	.....	.....	.....	60.5	3.6	6.3	56.0	.....	.....	117.
.....	.....	.....	59.8	−.1	−.2	.....	.....	.....	66.4	6.6	11.0	.....	.....	.....	71.3	4.9	7.4	118.
69.3	7.3	12.1	.....	.....	.....	74.1	4.8	6.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	119.
60.3	6.4	11.9	.....	.....	.....	66.7	6.4	10.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	120.
56.1	4.4	8.5	.....	.....	.....	59.8	3.7	6.6	.....	.....	.....	64.9	5.1	8.5	.....	.....	.....	121.
58.5	3.5	6.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	77.4	.....	.....	.....	.....	.....	122.
58.1	3.5	6.4	.....	.....	.....	64.9	6.8	11.7	.....	.....	.....	67.1	2.2	3.4	.....	.....	.....	123.
63.8	4.4	7.4	68.0	.....	.....	.....	.....	.....	75.0	7.0	10.3	.....	.....	.....	86.0	11.0	14.7	124.
.....	.....	.....	82.7	8.7	11.8	.....	.....	.....	83.8	1.1	1.3	.....	.....	.....	101.2	17.4	20.5	125.
.....	4.7	8.6	.....	4.2	7.1	.....	5.7	9.0	.....	5.3	8.5	.....	6.7	10.5	.....	8.7	12.0	Av.
.....	1.0	.....	.....	2.2	.....	.....	1.6	.....	.....	1.8	.....	.....	3.7	.....	.....	3.5	.....	Av. var.
.....	.....	.....	88.0	8.1	10.1	93.7	.....	.....	.....	.....	.....	107.4	13.7	14.6	.....	.....	.....	126.
.....	.....	.....	70.2	4.2	6.4	.....	.....	.....	76.8	6.6	9.4	.....	.....	.....	86.0	9.2	12.0	127.
.....	.....	.....	86.2	13.7	18.9	.....	.....	.....	99.7	13.5	15.7	.....	.....	.....	114.2	14.5	14.5	128.
75.8	5.9	8.4	.....	.....	.....	79.0	3.2	4.2	.....	.....	.....	88.0	9.0	11.4	.....	.....	.....	129.
74.9	6.9	10.1	80.6	9.2	11.3	.....	.....	.....	90.6	10.0	12.4	98.3	.....	.....	.....	.....	.....	130.
82.0	14.5	21.5	93.4	.....	.....	.....	.....	.....	97.4	4.0	4.3	.....	.....	.....	113.7	15.3	15.7	131.
63.5	4.2	7.1	.....	.....	.....	69.5	6.0	9.4	.....	.....	.....	75.2	5.7	8.2	.....	.....	.....	132.
93.3	9.0	10.2	.....	.....	.....	113.5	17.2	17.9	.....	.....	.....	116.8	3.3	2.9	.....	.....	.....	133.
68.0	.....	.....	72.4	.....	.....	76.0	8.0	11.8	77.2	4.8	6.6	80.0	4.0	5.3	.....	.....	.....	134.
69.5	7.2	11.6	.....	.....	.....	78.1	8.6	12.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	135.
.....	.....	.....	73.0	7.9	12.1	.....	.....	.....	78.5	5.5	7.5	.....	.....	.....	.....	.....	.....	136.
69.3	9.3	15.5	.....	.....	.....	76.3	7.0	10.1	.....	.....	.....	86.0	9.7	12.7	.....	.....	.....	137.
.....	.....	.....	83.6	9.0	12.1	.....	.....	.....	95.9	12.3	14.7	.....	.....	.....	.....	.....	.....	138.
.....	.....	.....	78.3	.....	.....	.....	.....	.....	83.0	4.7	6.0	85.0	.....	.....	90.0	7.0	8.4	139.
89.6	17.4	24.8	.....	.....	.....	87.1	−2.5	−2.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	140.
75.2	7.5	11.1	.....	.....	.....	84.7	9.5	12.6	.....	.....	.....	87.8	3.1	3.7	.....	.....	.....	141.
99.5	.....	.....	100.0	6.7	7.2	107.0	7.5	7.5	119.0	19.0	19.0	125.0	18.0	16.8	140.0	21.0	17.6	142.
75.9	.....	.....	.....	.....	.....	86.5	10.6	14.0	.....	.....	.....	89.8	3.3	3.8	.....	.....	.....	143.
74.6	4.4	6.3	.....	.....	.....	83.6	9.0	12.0	.....	.....	.....	101.2	17.6	21.1	.....	.....	.....	144.
78.1	8.1	11.6	.....	.....	.....	86.5	8.4	10.8	.....	.....	.....	96.4	9.9	11.5	.....	.....	.....	145.
90.9	10.2	12.6	97.9	9.2	10.4	.....	.....	.....	110.7	12.8	13.1	.....	.....	.....	133.1	22.4	20.2	146.
.....	.....	.....	88.0	4.8	5.8	.....	.....	.....	95.3	7.3	8.3	.....	.....	.....	108.0	12.7	13.3	147.
72.5	5.0	7.4	77.7	7.5	10.7	.....	.....	.....	85.8	8.1	10.4	90.0	.....	.....	.....	.....	.....	148.
86.4	2.4	2.9	.....	.....	.....	96.4	9.0	10.4	.....	.....	.....	107.8	12.4	13.0	.....	.....	.....	149.
86.0	.....	.....	90.6	6.3	7.5	.....	.....	.....	94.8	4.2	4.6	.....	.....	.....	105.8	11.0	11.6	150.
71.4	8.0	11.5	73.5	7.9	10.2	75.5	7.8	10.1	81.0	8.7	10.1	84.6	9.0	10.4	89.5	14.1	14.2	Av.
.....	2.9	.....	.....	1.8	.....	.....	2.5	.....	.....	3.8	.....	.....	4.4	.....	.....	4.2	.....	Av. var.

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TABLE 18.—*Increments of growth in weight for a group of 50*

[Weight and increment

No.	12 years.			12½ years.			13 years.			13½ years.			14 years.		
	Weight.	Increment, 11–12 years.	Per cent gain.	Weight.	Increment, 11½–12½ years.	Per cent gain.	Weight.	Increment, 12–13 years.	Per cent gain.	Weight.	Increment, 12½–13½ years.	Per cent gain.	Weight.	Increment, 13–14 years.	Per cent gain.
151	64.8			66.3						87.5	21.2	32.0			
152	67.0						72.0	5.0	7.5	77.2					
153	61.0			61.9			68.2	7.2	11.8	68.1	6.2	10.0			
154	66.0						83.0	17.0	25.8				84.3	1.3	1.6
155	62.0	5.7	10.1				75.9	13.9	22.4				92.2	16.3	21.5
156				64.0			68.0						75.7	7.7	11.3
157	72.8	1.7	2.4				80.1	7.3	10.0						
158							68.1						71.6	3.5	5.1
159	74.5						81.8	7.3	9.8	86.6					
160	62.0						67.5	5.5	8.9				73.3	5.8	8.6
161				75.4						81.8	6.4	8.5			
162				67.4	−0.4	−0.6				76.5	9.1	13.5			
163	68.6	.3	.5				68.0	9.4	16.0				83.4	15.4	22.6
164	77.0						85.0	8.0	10.4				97.5	12.5	14.7
165				77.1	8.2	11.9				88.0	10.9	14.1			
166	70.0	3.0	4.4				84.0	14.0	20.0	95.7					
167				71.6	3.1	4.5				80.5	8.9	12.4	87.6		
168	70.5			74.0						79.9	5.9	8.0			
169	74.0						81.5	7.5	10.1				93.5	12.0	14.7
170				79.8	4.3	5.7	86.4						91.8	5.4	6.1
171	82.0						90.5	8.5	10.4				107.0	16.5	18.2
172				78.9	9.1	13.0				82.3	3.4	4.4			
173				76.0	1.5	2.0	87.1						108.0	20.9	24.0
174				66.7	3.9	6.2				75.2	8.5	12.7			
175				77.0	8.6	12.6				88.7	11.7	15.2			
Av.		2.7	4.4		4.8	6.9		9.2	13.6		9.2	13.1		10.7	13.5
Av. var.		1.7			2.9			2.9			3.2			5.4	
176	68.5						76.5	8.0	11.7				82.0	5.5	7.1
177	75.0			79.0			80.1	5.1	6.8	80.3	1.3	1.6	93.7	13.6	16.9
178	73.0						75.0	2.0	2.7				82.5	7.5	10.0
179	77.8	6.3	8.8				85.9	8.1	10.4				103.6	17.7	20.6
180				61.7	4.9	8.6				69.8	8.1	13.1			
181	72.4	7.1	10.9				77.9	5.5	7.6				86.7	8.8	11.3
182				67.7	2.2	3.4				77.4	9.7	14.3			
183	75.0						78.5	3.5	4.7				87.0	8.5	10.8
184				74.5	6.0	8.8				83.1	8.6	11.5	87.5		
185	84.0	3.7	4.6				93.7	9.7	11.5				110.9	17.2	18.4
186				70.5	7.0	11.0	77.9								
187				75.0						90.0	15.0	20.0			
188				87.9	12.4	16.4									
189				79.8	5.1	6.8				85.6	5.8	7.3			
190	67.0						72.5	5.5	8.2				87.6	15.1	20.8
191				83.2	4.7	6.0				95.7	12.5	15.0			
192				88.3	5.3	6.4				101.1	12.8	14.5			
193				101.0	11.8	13.2				114.8	13.8	13.7			
194	79.8						90.2	10.4	13.0				106.9	16.7	18.5
195							82.0						90.4	8.4	10.2
196				104.5	8.8	9.2				113.0	9.5	8.1			
197				83.0	7.5	9.9	84.3						98.5	14.2	16.8
198				97.1	13.4	16.0				110.7	13.6	14.0			
199				106.8	17.8	20.0	121.0						130.0	9.0	7.4
200				95.3	10.3	12.1				102.4	7.1	7.5			
Av.	71.7	5.7	8.1	79.0	8.4	10.6	80.8	6.4	8.5	87.7	9.7	11.7	94.9	11.9	14.5
Av. var.		1.3			3.5			2.3			3.2			3.9	

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boys with consecutive measurements, from 12 to 17 years of age.

expressed in pounds.]

14½ years.			15 years.			15½ years.			16 years.			16½ years.			17 years.			No.
Weight.	Increment, 13½–14½ years.	Per cent gain.	Weight.	Increment, 14–15 years.	Per cent gain.	Weight.	Increment, 14½–15½ years.	Per cent gain.	Weight.	Increment, 15–16 years.	Per cent gain.	Weight.	Increment, 15½–16½ years.	Per cent gain.	Weight.	Increment, 16–17 years.	Per cent gain.	
96.5	9.0	10.3	105.5	.....	.....	115.2	18.7	19.5	.....	.....	.....	124.5	9.3	8.1	.....	.....	.....	151.
90.5	13.3	17.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	180.9	.....	.....	152.
76.0	8.9	13.1	79.5	.....	.....	91.0	15.0	19.7	96.0	16.5	20.8	102.0	11.0	12.1	110.0	14.0	14.6	153.
.....	.....	.....	96.4	12.1	14.4	.....	.....	.....	111.3	14.9	15.5	.....	.....	.....	128.5	17.2	15.5	154.
.....	.....	.....	102.1	9.9	10.7	.....	.....	.....	115.5	13.4	13.1	.....	.....	.....	117.7	2.2	1.9	155.
76.0	.....	.....	.....	.....	.....	84.7	8.7	11.4	90.0	.....	.....	101.5	16.8	19.8	112.5	22.5	25.0	156.
.....	.....	.....	112.5	.....	.....	118.0	.....	.....	131.7	19.2	17.1	.....	.....	.....	135.5	3.8	2.9	157.
.....	.....	.....	76.1	4.5	6.3	.....	.....	.....	90.9	14.8	19.4	.....	.....	.....	103.4	12.5	13.8	158.
91.5	4.9	5.6	.....	.....	.....	100.5	9.0	9.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	159.
80.0	.....	.....	.....	.....	.....	.....	.....	.....	101.8	.....	.....	.....	.....	.....	106.5	4.7	4.6	160.
89.1	7.3	8.9	.....	.....	.....	94.6	5.5	6.2	.....	.....	.....	109.8	15.2	16.1	.....	.....	.....	161.
87.7	21.2	27.7	104.3	.....	.....	112.8	25.1	28.6	122.5	18.2	17.4	128.0	15.2	12.4	135.0	12.5	10.2	162.
.....	.....	.....	98.3	14.9	17.9	.....	.....	.....	112.6	14.3	14.5	.....	.....	.....	121.7	9.1	8.2	163.
.....	.....	.....	105.5	8.0	8.2	.....	.....	.....	127.6	22.1	20.9	.....	.....	.....	134.2	6.6	5.2	164.
102.7	14.7	16.8	.....	.....	.....	118.8	16.1	15.7	.....	.....	.....	129.8	11.0	9.3	.....	.....	.....	165.
110.7	15.0	15.7	.....	.....	.....	115.2	4.5	4.1	.....	.....	.....	.....	.....	.....	122.1	.....	.....	166.
.....	.....	.....	103.8	16.2	18.5	.....	.....	.....	113.3	9.5	9.2	.....	.....	.....	123.6	10.3	9.1	167.
93.5	13.6	17.0	.....	.....	.....	106.3	12.8	13.7	.....	.....	.....	115.7	9.4	8.8	.....	.....	.....	168.
108.8	.....	.....	.....	.....	.....	.....	.....	.....	125.5	.....	.....	126.5	.....	.....	.....	.....	.....	169.
.....	.....	.....	99.2	7.4	8.1	.....	.....	.....	95.0	−4.2	−4.2	.....	.....	.....	130.2	35.2	37.1	170.
.....	.....	.....	105.8	−1.2	−1.1	.....	.....	.....	114.4	8.6	8.1	.....	.....	.....	122.9	8.5	7.4	171.
95.3	13.0	15.8	.....	.....	.....	117.0	21.7	22.8	.....	.....	.....	141.7	24.7	21.1	.....	.....	.....	172.
.....	.....	.....	120.6	12.6	11.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	173.
82.9	7.7	10.2	.....	.....	.....	104.5	21.6	26.1	.....	.....	.....	117.0	12.5	12.0	.....	.....	.....	174.
103.6	14.9	16.8	.....	.....	.....	111.5	7.9	7.6	.....	.....	.....	120.3	8.8	7.9	.....	.....	.....	175.
.....	12.0	14.6	.....	9.4	10.5	.....	13.9	15.4	.....	13.4	13.8	.....	3.4	12.7	.....	12.2	11.9	Av.
.....	3.7	.....	.....	4.3	.....	.....	5.8	.....	.....	4.8	.....	.....	3.7	.....	.....	5.5	.....	Av. var.
93.2	.....	.....	105.2	23.2	28.3	117.5	24.3	26.1	120.4	15.2	14.4	.....	.....	.....	127.5	7.1	5.9	176.
.....	.....	.....	108.0	14.3	15.3	118.0	.....	.....	.....	.....	.....	.....	.....	.....	138.5	.....	.....	177.
88.0	.....	.....	.....	.....	.....	.....	.....	.....	102.9	.....	.....	119.4	.....	.....	.....	.....	.....	178.
.....	.....	.....	123.9	20.3	19.6	.....	.....	.....	136.6	12.7	10.3	.....	.....	.....	140.1	3.5	2.6	179.
80.5	10.7	15.3	.....	.....	.....	97.9	17.4	21.6	.....	.....	.....	111.5	13.6	13.9	.....	.....	.....	180.
.....	.....	.....	103.0	16.3	18.8	.....	.....	.....	121.2	18.2	17.8	.....	.....	.....	130.9	9.7	8.0	181.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	110.8	.....	.....	.....	.....	.....	182.
.....	.....	.....	92.5	5.5	6.3	.....	.....	.....	108.7	16.2	17.5	.....	.....	.....	118.1	9.4	8.6	183.
92.5	9.4	11.3	104.2	16.7	19.1	109.7	17.2	18.9	.....	.....	.....	122.8	13.1	11.9	128.5	.....	.....	184.
.....	.....	.....	129.4	18.5	16.7	.....	.....	.....	143.0	13.6	10.5	.....	.....	.....	146.0	3.0	2.1	185.
92.9	.....	.....	97.9	.....	.....	.....	.....	.....	113.9	16.0	16.3	.....	.....	.....	130.5	16.6	14.6	186.
107.0	17.0	18.9	110.6	.....	.....	.....	.....	.....	.....	.....	.....	133.8	.....	.....	134.6	.....	.....	187.
118.1	.....	.....	.....	.....	.....	130.5	12.4	10.5	.....	.....	.....	138.8	8.3	6.4	.....	.....	.....	188.
94.4	8.8	10.3	.....	.....	.....	117.5	23.1	24.5	.....	.....	.....	128.4	10.9	9.3	.....	.....	.....	189.
.....	.....	.....	102.8	15.2	17.4	.....	.....	.....	109.4	6.6	6.4	.....	.....	.....	109.8	.4	.4	190.
108.0	12.3	12.9	.....	.....	.....	132.0	24.0	22.2	.....	.....	.....	139.7	7.7	5.8	.....	.....	.....	191.
112.9	11.8	11.7	.....	.....	.....	130.5	17.6	15.6	.....	.....	.....	141.9	11.4	8.7	.....	.....	.....	192.
123.5	8.7	7.6	.....	.....	.....	137.9	14.4	11.7	.....	.....	.....	155.7	17.8	12.9	.....	.....	.....	193.
.....	.....	.....	124.3	17.4	16.3	.....	.....	.....	146.9	22.6	18.2	.....	.....	.....	152.0	5.1	3.5	194.
98.4	.....	.....	.....	.....	.....	100.5	2.1	2.1	.....	.....	.....	98.5	−2.0	−2.0	.....	.....	.....	195.
128.7	15.7	13.9	.....	.....	.....	133.1	4.4	3.4	.....	.....	.....	153.5	20.4	15.4	.....	.....	.....	196.
.....	.....	.....	110.6	12.1	12.3	.....	.....	.....	118.8	8.2	7.4	.....	.....	.....	.....	.....	.....	197.
123.2	12.5	11.3	.....	.....	.....	124.3	1.1	.9	.....	.....	.....	128.7	4.4	3.6	.....	.....	.....	198.
.....	.....	.....	.....	.....	.....	156.2	.....	.....	.....	.....	.....	158.6	2.4	1.6	.....	.....	.....	199.
111.2	8.8	8.6	.....	.....	.....	132.9	21.7	19.5	.....	.....	.....	146.7	13.8	10.4	.....	.....	.....	200.
98.7	11.6	10.1	104.9	16.0	17.0	115.4	15.0	14.8	115.4	14.3	13.2	127.1	10.2	8.2	128.5	7.9	5.7	Av.
.....	2.3	.....	.....	3.3	.....	.....	6.7	.....	.....	3.6	.....	.....	5.0	.....	.....	3.9	.....	Av. var.

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TABLE 19.—*Increments of growth in lung capacity for a group*

[Lung capacity and increment

No.	7 years.			7½ years.			8 years.			8½ years.			9 years.			9½ years.		
	Lung capacity.	Increment, 6-7 years.	Per cent gain.	Lung capacity.	Increment, 6½-7½ years.	Per cent gain.	Lung capacity.	Increment, 7-8 years.	Per cent gain.	Lung capacity.	Increment, 7½-8½ years.	Per cent gain.	Lung capacity.	Increment, 8-9 years.	Per cent gain.	Lung capacity.	Increment, 8½-9½ years.	Per cent gain.
1	65															80		
2	61						73	12	20.0				84	11	15.1			
3	60						62	2	3.4				76	14	22.5			
4										68			78					
5				50									70			88		
6										65			68			68	3	4.6
7				55						79	24	43.6				92	13	16.4
8				61						61	0	.0				78	17	27.9
9				76						98	22	28.9				98	0	.0
10	70	50	250.0				78	8	11.4				84	6	7.7			
11				68	18	36.0				88	20	29.1				96	8	9.1
12	52			62						70	8	12.9				70	0	.0
13										80			80			95	15	18.8
14	38																	
15										70			70			80	10	14.2
16	70						70	0	.0				70	0	.0			
17	60						78	18	30.0				84	6	7.7			
18				50	10	25.0				70	20	40.0				78	8	11.4
19	65			85														
20	40									66						72	6	9.1
21										98						95	−3	−3.1
22				74			80						90	10	12.5			
23				102						102	0	.0				116	14	1.4
24				86			92						90	−2	−2.2			
25	90	26	40.6				96	6	6.7				104	8	8.3			
Av.		38	145.3		14	30.5		7.7	8.9		3	20.6		6.8	9.2		7.9	9.1
Av. var.		12			4			5.0			8			2.3			5.3	
26	40						60	20	50.0				90	30	50.0			
27				73			79			79	6	8.2	85	6	7.6	75	−4	−5.1
28	75			75			80	5	6.6									
29				72						72	0	.0				92	20	2.8
30	59						80	21	35.6				88	8	10.0			
31				98	14	16.7				100	2	2.0				112	12	12.0
32	40																	
33				68	7	11.5				78	10	14.7				89	11	14.1
34										95						105	10	10.5
35				80									104					
36																68		
37				80			90						110	20	22.2			
38	66			80	14	21.2				90	10	12.5				100	10	11.1
39				80						86	6	7.5				104	18	20.9
40	100						108	8	8.0				107	−1	−.9			
41	110			115			85	−25	−21.7	100	−15	−13.0	100	15	17.6			
42				90						100	10	11.1				104	4	4.0
43	60			85			70	10	16.6									
44				70									85					
45				61	37	154.1				86	25	40.8				110	24	27.8
46				108	38	54.3				96	−12	−11.1				120	24	25.0
47				74						86	12	16.2				90	4	4.6
48										90			100			100	10	11.1
49	78						80	2	2.5				88	8	10.0			
50	98			104	6	6.2	108	10	12.0	90	−14	−13.4						
Av.	71.3			77.9	19.3	44.2	81.8	6.4	13.6	93.5	3.3	6.3	87.3	12.3	16.6	91.7	11.9	11.6
Av. var.					12.1			9.3			9.3			8.0			8.2	

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of 50 girls with consecutive measurements, from 7 to 13 years of age.

expressed in cubic centimeters.]

10 years.			10½ years.			11 years.			11½ years.			12 years.			12½ years.			13 years.			No.
Lung capacity.	Increment, 9–10 years.	Per cent gain.	Lung capacity.	Increment, 9½–10½ years.	Per cent gain.	Lung capacity.	Increment, 10–11 years.	Per cent gain.	Lung capacity.	Increment, 10½–11½ years.	Per cent gain.	Lung capacity.	Increment, 11–12 years.	Per cent gain.	Lung capacity.	Increment, 11½–12½ years.	Per cent gain.	Lung capacity.	Increment, 12–13 years.	Per cent gain.	
85	.....	.....	75	−5	−6.3	.....	.....	.....	85	10	13.3	97	.....	.....	105	20	23.5	120	23	23.7	1.
93	14	16.7	.....	.....	.....	108	10	10.2	.....	.....	.....	118	10	9.3	.....	.....	.....	148	30	25.4	2.
94	18	23.6	.....	.....	.....	102	8	8.5	.....	.....	.....	110	8	7.8	.....	.....	.....	124	14	12.7	3.
72	−6	−7.7	.....	.....	.....	92	20	28.5	.....	.....	.....	100	8	8.7	.....	.....	.....	114	14	14.0	4.
.....	.....	.....	92	4	4.5	.....	.....	.....	98	6	6.5	90	.....	.....	112	14	14.2	104	.....	.....	5.
.....	.....	.....	79	11	16.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.
.....	.....	.....	88	4	4.4	.....	.....	.....	98	10	11.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.
.....	.....	.....	92	14	17.9	.....	.....	.....	114	22	23.9	.....	.....	.....	126	12	10.5	.....	.....	.....	8.
.....	.....	.....	118	20	20.1	.....	.....	.....	124	6	5.1	.....	.....	.....	134	10	8.1	.....	.....	.....	9.
88	4	4.8	.....	.....	.....	110	22	25.0	.....	.....	.....	112	2	1.8	.....	.....	.....	134	22	19.7	10.
.....	.....	.....	98	2	2.0	.....	.....	.....	108	10	10.2	.....	.....	.....	118	10	.9	.....	.....	.....	11.
.....	.....	.....	.....	.....	.....	.....	.....	.....	94	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.
.....	.....	.....	100	5	5.6	105	.....	.....	115	10	9.5	130	25	23.8	140	25	21.7	155	25	19.2	13.
90	.....	.....	.....	.....	.....	113	.....	.....	.....	.....	.....	180	67	59.2	.....	.....	.....	125	−55	−30.5	14.
80	10	14.3	.....	.....	.....	85	5	6.3	95	.....	.....	95	10	11.7	125	30	31.5	130	35	36.8	15.
98	28	40.0	.....	.....	.....	92	−6	−6.1	.....	.....	.....	118	26	28.2	.....	.....	.....	138	20	16.9	16.
84	0	.0	.....	.....	.....	102	18	21.4	.....	.....	.....	122	20	19.6	.....	.....	.....	.....	.....	.....	17.
.....	.....	.....	88	10	12.8	.....	.....	.....	96	8	9.1	.....	.....	.....	120	24	25.0	.....	.....	.....	18.
105	.....	.....	125	.....	.....	125	20	19.0	.....	.....	.....	130	5	4.0	165	.....	.....	180	50	38.4	19.
.....	.....	.....	80	8	11.1	76	.....	.....	.....	.....	.....	112	36	47.3	.....	.....	.....	122	10	8.9	20.
105	.....	.....	130	35	36.8	132	27	25.7	130	0	.0	145	13	9.8	155	25	19.2	165	20	13.8	21.
94	4	4.4	.....	.....	.....	110	16	17.0	.....	.....	.....	118	8	7.2	.....	.....	.....	138	20	16.9	22.
124	.....	.....	.....	.....	.....	134	10	8.1	.....	.....	.....	158	24	17.9	.....	.....	.....	188	30	19.0	23.
108	18	20.0	.....	.....	.....	110	2	1.9	.....	.....	.....	128	18	16.3	.....	.....	.....	140	12	4.3	24.
114	10	9.6	.....	.....	.....	124	10	8.8	126	.....	.....	136	12	9.6	.....	.....	.....	158	22	16.1	25.
.....	10.0	12.6	.....	9.8	11.4	...	12.5	13.4	...	9.1	9.9	.....	18.2	17.6	.....	18.9	17.2	.....	18.3	16.0	Av.
.....	6.6	.....	.....	7.3	.....	...	7.4	.....	...	2.7	.....	.....	11.1	.....	.....	6.6	.....	.....	11.4	.....	Av. var.
108	18	20.0	.....	.....	.....	114	6	5.5	.....	.....	.....	128	14	12.2	.....	.....	.....	148	20	15.4	26.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	114	.....	.....	.....	.....	.....	27.
100	.....	.....	110	.....	.....	120	20	20.0	.....	.....	.....	145	25	20.8	165	.....	.....	165	20	13.7	28.
91	.....	.....	.....	.....	.....	110	19	20.8	.....	.....	.....	122	12	10.9	.....	.....	.....	161	39	31.9	29.
98	10	11.3	.....	.....	.....	104	6	6.1	.....	.....	.....	118	14	13.4	130	.....	.....	.....	.....	.....	30.
.....	.....	.....	114	2	1.7	.....	.....	.....	126	12	10.5	.....	.....	.....	142	16	12.7	.....	.....	.....	31.
.....	.....	.....	90	.....	.....	84	.....	.....	.....	.....	.....	122	38	45.2	128	.....	.....	.....	.....	.....	32.
.....	.....	.....	98	9	10.1	.....	.....	.....	110	12	12.2	.....	.....	.....	136	26	23.6	.....	.....	.....	33.
.....	.....	.....	130	25	23.8	.....	.....	.....	130	0	.0	.....	.....	.....	145	15	11.5	.....	.....	.....	34.
114	10	9.6	.....	.....	.....	120	6	5.2	.....	.....	.....	132	12	10.0	.....	.....	.....	144	12	9.1	35.
96	.....	.....	128	60	88.2	159	63	65.6	.....	.....	.....	.....	.....	.....	147	.....	.....	147	.....	.....	36.
122	12	1.1	.....	.....	.....	130	8	6.5	.....	.....	.....	144	14	10.7	.....	.....	.....	168	24	14.2	37.
.....	.....	.....	120	20	20.0	.....	.....	.....	132	12	10.0	.....	.....	.....	178	46	34.8	.....	.....	.....	38.
.....	.....	.....	120	16	15.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	138	.....	.....	.....	.....	.....	39.
124	17	15.8	.....	.....	.....	132	8	6.4	.....	.....	.....	140	8	6.1	.....	.....	.....	160	20	14.4	40.
.....	.....	.....	.....	.....	.....	130	.....	.....	140	.....	.....	155	25	19.2	.....	.....	.....	175	20	12.9	41.
.....	.....	.....	118	14	13.4	.....	.....	.....	118	0	.0	.....	.....	.....	142	24	20.3	.....	.....	.....	42.
.....	.....	.....	115	.....	.....	130	.....	.....	.....	.....	.....	140	10	7.7	140	.....	.....	.....	.....	.....	43.
122	37	43.5	.....	.....	.....	134	12	9.8	153	.....	.....	153	19	14.1	165	12	7.8	.....	.....	.....	44.
.....	.....	.....	120	10	9.1	.....	.....	.....	128	8	6.6	.....	.....	.....	150	22	17.1	.....	.....	.....	45.
.....	.....	.....	130	10	8.3	.....	.....	.....	142	12	9.2	.....	.....	.....	190	48	33.8	.....	.....	.....	46.
.....	.....	.....	112	22	24.4	.....	.....	.....	124	12	10.7	.....	.....	.....	164	40	32.3	.....	.....	.....	47.
.....	.....	.....	105	5	5.0	110	.....	.....	125	20	19.1	130	20	18.1	.....	.....	.....	150	10	7.1	48.
110	22	25.0	.....	.....	.....	124	14	12.7	.....	.....	.....	140	16	12.8	.....	.....	.....	.....	.....	.....	49.
.....	.....	.....	.....	.....	.....	.....	.....	.....	122	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50.
100.9	18.0	18.0	108.7	17.6	19.9	114	16.2	15.8	119	9.8	8.7	128	17.5	15.5	141.3	27.7	21.8	146.2	19.4	14.8	Av.
.....	6.6	.....	.....	10.1	.....	...	10.7	.....	...	2.6	.....	.....	6.1	.....	.....	11.4	.....	.....	5.5	.....	Av. var.

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TABLE 20.—*Increments of growth in lung capacity for a group*

[Lung capacity and increment

No.	12 years.			12½ years.			13 years.			13½ years.			14 years.		
	Lung capacity.	Increment, 11–12 years.	Per cent gain.	Lung capacity.	Increment, 11½–12½ years.	Per cent gain.	Lung capacity.	Increment, 12–13 years.	Per cent gain.	Lung capacity.	Increment, 12½–13½ years.	Per cent gain.	Lung capacity.	Increment, 13–14 years.	Per cent gain.
51	90			106						126	20	18.9			
52	98	4	14.3				118	20	20.4				130	12	10.2
53				128						128	0	.0			
54				100	2	2.0	110						130	20	18.2
55				86	4	4.9	90						105	15	16.7
56	110	30	37.5	116						124	8	6.9			
57	100	−25	−20.0	105	−25	−19.2	110	10	10.0						
58				90	2	2.3				118	28	31.1			
59	120	28	30.4				140	20	16.7				144	4	2.9
60	110	14	14.6				124	14	12.7	138					
61	122	12	10.9				142	20	16.4				154	12	8.5
62	125			120	15	14.3				145	25	20.8	170		
63	105												142		
64	105												150		
65				110	6	5.8	124						144	20	16.1
66	125	25	25.0				150	25	20.0	175			185	35	23.3
67										145			140		
68	118	10	19.3	128						144	16	12.5			
69	112									136					
70				130	16	14.0				148	18	13.8			
71	146						158	12	8.2				170	12	7.6
72	112	14	14.3				128	16	14.3				136	8	6.3
73	119	29	32.3										148		
74				132	22	20.0				138	6	4.5			
75	124	24	24.0				142	18	14.5				142	0	.0
Av.		15.0	16.6		5.3	5.5		17.2	14.8		15.1	13.6		13.8	11.0
Av. var.		11.0			9.5			3.9			5.9			5.5	
76	110						120	10	9.1				140	20	16.7
77	112	12	12.0				125	13	11.6				135	10	8.0
78	110	10	10.0				125	15	13.6	140					
79				130	22	20.4				150	20	15.4			
80															
81	124						140	16	12.9				150	10	7.1
82	105	5	5.0										140		
83	112	10	9.8				140	28	22.3	144			168	28	20.0
84	128						136	8	6.3				148	12	8.8
85							61						70	9	14.8
86	140	12	9.4				154	14	10.0				190	36	23.3
87				136	18	15.3	154						180	26	16.9
88													115		
89	145						150	5	3.4						
90				136	24	21.4				160	24	17.6			
91				150											
92	138	19	16.0				170	32	23.2				174	4	2.4
93	171			183			171	0	.0	177	−6	−3.3	165	−6	−3.5
94				134	28	26.4				148	14	10.4	156		
95	124	4	3.3				140	16	12.9				176	36	25.7
96	130	5	4.0										170		
97	146						164	18	13.3				190	26	15.8
98				180	20	12.5				210	30	16.7			
99				168	30	21.7				170	2	1.2			
100				138	18	15.0				138	0	.0			
Av.	125.2	9.6	8.7	128.9	22.9	19.0	134.1	14.6	11.5	147.7	12.0	8.3	153.5	17.6	12.0
Av. var.		3.7			3.9			5.0			9.7			11.1	

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of 50 girls with consecutive measurements, from 12 to 17 years of age.

expressed in cubic centimeters.]

14½ years.			15 years.			15½ years.			16 years.			16½ years.			17 years.			
Lung capacity.	Increment, 13½–14½ years.	Per cent gain.	Lung capacity.	Increment, 14–15 years.	Per cent gain.	Lung capacity.	Increment, 14½–15½ years.	Per cent gain.	Lung capacity.	Increment, 15–16 years.	Per cent gain.	Lung capacity.	Increment, 15½–16½ years.	Per cent gain.	Lung capacity.	Increment, 16–17 years.	Per cent gain.	No.
152	26	20.6				152	0	0.0	160			164	12	7.9				51.
			152	22	16.9				152	0	0.0				156	4	2.6	52.
160	32	25.0				172	12	7.5							220			53.
			140	10	7.7				144	4	2.9				154	10	6.9	54.
			124	19	18.1				140	16	12.9				150	10	7.1	55.
148	24	19.4				168	20	13.5				180	12	7.1				56.
			145			140			160	15	10.3				170	10	6.3	57.
124	16	13.6				140	6	4.5				140	0	.0				58.
			152	8	5.6				156	4	2.6				164	8	5.1	59.
148	10	7.2				158	10	6.8				158	0	.0				60.
			168	14	9.1				178	10	6.0							61.
			185	15	8.8	195						205	10	5.1	200			62.
155			160	18	12.7				165	5	3.1	175						63.
150			155	5	3.3				160	5	3.2	160			170	10	6.3	64.
			158	14	9.7				172	14	8.9				172	0	.0	65.
190	15	8.6	215	30	16.2	215	25	13.2	210	−5	−2.3	215	0	.0	195	−15	−7.1	66.
						140						147	7	5.0				67.
168	24	16.7				182	14	8.3				192	10	5.5				68.
148	12	8.8	180						190	10	5.6				196	6	3.2	69.
164	16	10.8				164	0	.0				172	8	4.9				70.
			190	20	11.8				192	2	1.1				178	−14	−7.3	71.
			148	12	8.8				150	2	1.3				160	10	6.7	72.
			158	10	6.8				162	4	2.5				164	2	1.2	73.
148	10	7.2				148	0	.0				148	0	.0				74.
			168	26	18.3				168	0	.0				170	2	1.2	75.
	18.5	13.8		15.9	10.9		9.7	6.0		5.0	3.9		5.9	3.6		3.3	2.5	Av.
	6.4			5.6			4.0			2.9			2.3			6.4		Av. var
			160	20	14.3				166	6	3.8				178	12	7.2	76.
			154	19	14.1										166			77.
160	20	14.3	165			155	−5	−3.1	170	5	3.0	175	20	13.9				78.
168	18	12.0				180	12	7.1				184	4	2.2				79.
																		80.
			150	0	.0	180			184	34	22.7				188	4	2.2	81.
150			145	5	3.6				150	5	3.3	170			170	20	13.3	82.
			177	9	5.4				198	21	11.9				204	6	3.0	83.
			170	22	14.9				172	2	1.2				178	6	3.5	84.
81			85	14	20.0							158						85.
			190	0	.0				234	44	23.2				236	2	.9	86.
			194	14	7.8				208	14	7.2				216	8	3.8	87.
115			130	15	13.0	121	6	5.1				147	26	21.5	166			88.
155			175						190	15	8.6				180	−10	−5.3	89.
174	14	8.8				184	10	5.7				186	2	1.1				90.
190			200			210	20	10.5				200	−10	−4.8	215			91.
190									204			206						92.
									192			184						93.
			170	14	9.0							172			180			94.
			190	14	8.0	196						200	4	2.0				95.
165			175	5	2.9	170	5	3.0	180	5	2.9	185	15	8.8	190	10	5.6	96.
			200	10	5.3				212	12	6.0				220	8	3.8	97.
226	16	7.6				240	14	6.2				238	−2	−.8				98.
180	10	5.5				194	14	1.8				196	2	1.0				99.
150	12	8.7				164	14	9.3				170	6	3.7				100.
158.8	15.0	9.5	164.5	11.5	8.5	172.6	10.0	5.0	176.5	14.8	8.5	178.8	6.7	5.0	183	6.6	3.8	Av.
	3.0			4.1			5.3			9.9			8.2			5.0		Av. var.

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TABLE 21.—*Increments of growth in lung capacity for a group of*

[Lung capacity and increment

No.	7 years.			7½ years.			8 years.			8½ years.			9 years.			9½ years.			10 years.		
	Lung capacity.	Increment, 6–7 years.	Per cent gain.	Lung capacity.	Increment, 6½–7½ years.	Per cent gain.	Lung capacity.	Increment, 7–8 years.	Per cent gain.	Lung capacity.	Increment, 7½–8½ years.	Per cent gain.	Lung capacity.	Increment, 8–9 years.	Per cent gain.	Lung capacity.	Increment, 8½–9½ years.	Per cent gain.	Lung capacity.	Increment, 9–10 years.	Per cent gain.
101.	55												80			92			96	−4	−5.0
102.										70						86	16	22.9			
103.	58						60	2	3.4				60	0	0.0				64	4	6.7
104.				72	8	12.5				82	10	13.9				90	8	9.8			
105.				67						91	24	35.8				100	9	9.9			
106.	60						68	8	1.3				68	0	.0						
107.				55						72	17	30.9				80	8	11.1			
108.													76					8.3	90	14	18.4
109.										96						104	8				
110.							70						84	14	20.0				98	14	16.7
111.				60			68						82	14	20.6				100	18	21.9
112.	76	12	18.8				80	4	5.3				92	12	15.0				100	8	8.7
113.	70						70	0	.0				102	32	45.7	112					
114.	76	16	27.7				90	14	18.4				90	0	.0				96	6	6.7
115.				88	18	25.0				96	8	9.1				102	6	6.3			
116.							76						98	22	28.9				118	20	20.4
117.	65						65	0	.0										102		
118.				74	4	5.7				90	16	21.6				102	12	13.3	92		
119.				66						84	18	27.3				104	20	23.8			
120.				66	16	32.0				70	4	6.1				72	2	2.9			
121.				82						84	2	2.4				92	8	9.5			
122.										86						100	14	16.2			
123.				72						80	8	11.1				90	10	12.5			
124.										75			85			80	5	6.6			
125.							74						90	16	21.6				108	18	20.0
Av.		14	23.3		11.5	19.0		4.7	9.5		11.9	17.6		12.2	16.9		9.7	11.8		10.9	12.7
Av. var.		2			5.5			2.7			6.1			6.8			8.0			7.1	
126.							78						92	14	18.2				100	8	8.7
127.	60						78	18	30.0				90	12	15.4				110	20	22.2
128.	90						100	10	11.1				122	22	22.0				130	8	6.6
129.				108						92	−16	−14.8				122	30	32.6			
130.	65			75															110		
131.										98						128	30	30.6			
132.													108			120					
133.							92						90	−2	−2.2	136					
134.				130			132														
135.				61						112	51	83.6				120	8	7.1			
136.				80			100						118	18	18.0				124	6	5.1
137.				98									108			132					
138.	79						100	21	26.7				110	10	10.0				114	4	3.6
139.																93					
140.				92						106	14	15.2				106	0	.0			
141.										92						96	4	4.3			
142.										110											
143.	84			100						112	12	12.0							132	8	
144.										106						110	4	3.8			
145.				102						112	10	9.8				126	14	12.5			
146.	86						120	34	40.0				140	20	16.7	142			148	8	5.7
147.	96						106	10	10.4				120	14	13.2				132	12	10.0
148.	85			100															135		
149.										114						128	14	12.3			
150.	130	30	30.0																154		
Av.	77.2			82.4			85.6	18.6	25.6	92.6	14.2	21.1	95.7	13.5	13.9	105.9	13.0	12.9	111.5	9.4	8.8
Av. var.								7.1			14.7			5.1			7.4			3.7	

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50 boys, with consecutive measurements, from 7 to 13 years of age.

expressed in cubic centimeters.]

10½ years.			11 years.			11½ years.			12 years.			12½ years.			13 years.			No.
Lung capacity.	Increment, 9½–10½ years.	Per cent gain.	Lung capacity.	Increment, 10–11 years.	Per cent gain.	Lung capacity.	Increment, 10½–11½ years.	Per cent gain.	Lung capacity.	Increment, 11–12 years.	Per cent gain.	Lung capacity.	Increment, 11½–12½ years.	Per cent gain.	Lung capacity.	Increment, 12–13 years.	Per cent gain.	
.....	.....	.....	.....	.....	.....	81	.....	.....	95	.....	.....	100	19	23.5	100	5	5.3	101.
94	8	9.3	.....	.....	.....	98	4	4.3	.....	.....	.....	110	12	12.2	.....	.....	.....	102.
.....	.....	.....	72	8	12.5	.....	.....	.....	80	8	11.1	.....	.....	.....	.....	.....	.....	103.
102	12	13.3	.....	.....	.....	106	4	3.9	.....	.....	.....	118	12	11.3	.....	.....	.....	104.
120	20	20.0	.....	.....	.....	128	8	6.7	.....	.....	.....	136	8	6.3	.....	.....	.....	105.
.....	.....	.....	70	.....	.....	.....	.....	.....	88	18	25.7	.....	.....	.....	100	12	13.6	106.
88	8	10.0	.....	.....	.....	90	2	2.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	107.
.....	.....	.....	88	−2	−2.2	.....	.....	.....	90	2	2.3	.....	.....	.....	114	24	26.7	108.
.....	.....	.....	.....	.....	.....	105	.....	.....	130	.....	.....	130	25	23.8	138	8	6.2	109.
.....	.....	.....	108	10	10.2	.....	.....	.....	110	8	7.4	.....	.....	.....	128	12	10.4	110.
.....	.....	.....	118	18	18.0	.....	.....	.....	120	2	1.7	.....	.....	.....	122	2	1.7	111.
.....	.....	.....	110	10	10.0	.....	.....	.....	114	4	3.6	.....	.....	.....	130	16	14.0	112.
122	10	8.9	.....	.....	.....	136	14	11.4	.....	.....	.....	150	14	10.3	.....	.....	.....	113.
.....	.....	.....	104	8	8.3	.....	.....	.....	.....	.....	.....	120	.....	14.5	.....	.....	.....	114.
120	18	17.6	.....	.....	.....	124	4	3.3	.....	.....	.....	142	18	.....	.....	.....	.....	115.
.....	.....	.....	124	6	5.1	.....	.....	.....	126	2	1.6	.....	.....	.....	154	28	22.2	116.
.....	.....	.....	107	5	4.9	104	.....	.....	.....	.....	.....	110	6	5.8	.....	.....	.....	117.
.....	.....	.....	104	12	13.4	.....	.....	.....	118	14	13.5	.....	.....	.....	122	4	3.4	118.
110	6	5.8	.....	.....	.....	120	10	9.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	119.
80	8	11.1	.....	.....	.....	100	20	25.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	120.
100	8	8.7	.....	.....	.....	110	10	10.0	.....	.....	.....	110	0	.....	.....	.....	.....	121.
104	4	4.0	.....	.....	.....	110	6	5.8	.....	.....	.....	136	26	23.6	.....	.....	.....	122.
98	−8	8.8	.....	.....	.....	122	24	24.5	.....	.....	.....	128	6	4.9	.....	.....	.....	123.
95	15	18.8	111	.....	.....	.....	.....	.....	100	−11	−10.0	.....	.....	.....	135	35	35.0	124.
.....	.....	.....	108	0	.0	.....	.....	.....	126	18	15.7	.....	.....	.....	132	6	4.8	125.
.....	9.0	14.4	.....	7.5	8.0	.....	9.6	9.7	.....	6.5	7.3	.....	13.3	12.4	.....	13.8	13.0	Av.
.....	4.9	.....	.....	3.5	.....	.....	5.4	.....	.....	6.7	.....	.....	6.5	.....	.....	8.7	.....	Av. var.
.....	.....	.....	112	12	12.0	138	.....	.....	.....	.....	.....	148	10	7.2	.....	.....	.....	126.
.....	.....	.....	128	18	16.4	.....	.....	.....	144	16	12.5	.....	.....	.....	144	0	.0	127.
.....	.....	.....	138	8	6.2	.....	.....	.....	184	46	33.3	.....	.....	.....	230	46	25.0	128.
140	18	14.8	.....	.....	.....	148	8	5.7	.....	.....	.....	152	4	2.7	.....	.....	.....	129.
120	.....	.....	115	5	4.5	.....	.....	.....	137	22	19.1	150	.....	.....	.....	.....	.....	130.
140	12	9.4	156	.....	.....	.....	.....	.....	178	22	14.1	.....	.....	.....	192	14	7.9	131.
124	4	3.5	.....	.....	.....	140	16	12.9	.....	.....	.....	154	14	10.0	.....	.....	.....	132.
143	6	4.4	.....	.....	.....	152	10	7.1	.....	.....	.....	172	20	13.2	.....	.....	.....	133.
.....	.....	.....	.....	.....	.....	128	.....	.....	148	.....	.....	150	22	17.2	.....	.....	.....	134.
126	6	5.0	.....	.....	.....	130	4	3.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	135.
.....	.....	.....	138	14	11.1	.....	.....	.....	156	18	13.0	.....	.....	.....	.....	.....	.....	136.
140	8	6.1	.....	.....	.....	156	16	11.4	.....	.....	.....	172	16	10.2	.....	.....	.....	137.
.....	.....	.....	128	14	12.2	.....	.....	.....	142	14	10.9	.....	.....	.....	.....	.....	.....	138.
.....	.....	.....	75	.....	.....	.....	.....	.....	100	25	33.0	125	.....	.....	145	45	45.0	139.
132	26	24.5	.....	.....	.....	158	26	20.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	140.
110	14	14.4	.....	.....	.....	108	−2	−1.8	.....	.....	.....	118	10	9.3	.....	.....	.....	141.
135	.....	.....	140	.....	.....	155	20	14.8	170	30	21.4	175	20	12.9	190	20	11.7	142.
144	.....	.....	.....	.....	.....	152	8	5.6	.....	.....	.....	152	0	.0	.....	.....	.....	143.
130	20	18.2	.....	.....	.....	132	2	1.5	.....	.....	.....	146	14	10.6	.....	.....	.....	144.
140	14	11.1	.....	.....	.....	156	16	11.4	.....	.....	.....	174	18	11.5	.....	.....	.....	145.
160	18	12.6	178	30	20.3	.....	.....	.....	188	10	5.6	.....	.....	.....	198	10	5.3	146.
.....	.....	.....	152	20	15.2	.....	.....	.....	166	14	9.2	.....	.....	.....	182	16	9.6	147.
150	.....	.....	137	2	1.5	.....	.....	.....	145	8	5.6	165	.....	.....	.....	.....	.....	148.
134	6	4.7	.....	.....	.....	146	12	9.0	.....	.....	.....	150	4	2.7	.....	.....	.....	149.
172	.....	.....	174	20	12.9	.....	.....	.....	190	16	9.2	.....	.....	.....	210	20	10.6	150.
123.2	12.7	10.7	119.8	14.3	11.2	126.2	11.3	8.4	134.0	20	15.6	140.5	12.7	9.0	150.8	21.4	14.4	Av.
.....	5.7	.....	.....	6.2	.....	.....	6.3	.....	.....	7.4	.....	.....	5.0	.....	.....	9.4	.....	Av. var.

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TABLE 22.—*Increments of growth in lung capacity of a group of*

[Lung capacity and increment

No.	12 years.			12½ years.			13 years.			13½ years.			14 years.		
	Lung capacity.	Increment, 11–12 years.	Per cent gain.	Lung capacity.	Increment, 11½–12½ years.	Per cent gain.	Lung capacity.	Increment, 12–13 years.	Per cent gain.	Lung capacity.	Increment, 12½–13½ years.	Per cent gain.	Lung capacity.	Increment, 13–14 years.	Per cent gain.
151	110			110						150	40	36.3			
152	108						124	16	14.8	124					
153				125			130			130	5	4.0			
154	103						120	17	16.5				132	12	10.0
155	90	−2	−2.2				118	28	31.1				148	30	25.4
156													100		
157							130								
158							118						118	0	.0
159	130						138	8	6.2	145					
160	100						108	8	8.0				118	10	9.3
161				118						142	24	20.3			
162										138					
163	124	14	12.7				126	2	1.6				168	42	33.3
164	135						152	17	12.6				172	20	13.2
165				128	12	10.3				148	20	15.6			
166	100						128	28	28.0	152					
167				118	2	17.2				142	24	20.3	164		
168	162	0	.0	184						200	16	8.7			
169	110						128	18	16.4				152	24	18.8
170				132	0	.0	144						162	18	12.5
171	150	46	43.4				162	12	8.0				198	36	22.2
172				114	4	3.6									
173				132	12	10.0	155						192	37	23.9
174				102	4	4.1				112	10	9.8			
175				143	31	27.7				158	15	10.5			
Av.		14.5	13.5		9.3	10.3		15.4	14.3		19.3	15.7		22.9	16.9
Av. var		12.0			6.4			6.3			7.8			10.9	
176	125						120	−5	−4.0						
177							168			170			150	−18	−10.7
178							118						138	20	17.0
179	124	6	5.1				128	4	3.2				152	24	18.8
180				110	8	7.8				128	18	16.4			
181	134	12	9.8				140	6	4.5				160	20	14.4
182				115	9	8.5				128	13	11.3			
183	150						172	22	14.6				180	8	4.7
184				120											
185	128						152	24	18.8				176	24	15.8
186				118	28	31.1	128								
187				140						164	24	17.1			
188				158	18	12.9									
189				138	18	15.0				142	4	2.9			
190	144	4	2.9				160	16	11.1				192	32	20.0
191				150	10	7.1				172	22	14.7			
192				176	4	2.3				188	12	6.7			
193				155	20	14.8									
194	118						142	24	20.3				178	36	25.4
195							152						178	26	17.1
196				156	11	7.6				164	8	5.1			
197				133	3	2.3	138						170	33	23.2
198				172	36	26.5				208	36	20.9			
199				162	6	3.8	190						240	50	26.3
200				150	26	19.0				158	8	5.3			
Av.	123.4	7.3	5.9	136.9	15	12.2	138.9	13.0	9.8	152.9	16.1	11.2	162.5	23.0	15.6
Av. var		3.1			9			9.7			7.9			8.9	

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50 boys with consecutive measurements, from 12 to 17 years of age.

expressed in cubic centimeters.]

14½ years.			15 years.			15½ years.			16 years.			16½ years.			17 years.			No.
Lung capacity.	Increment, 13–14 years.	Per cent gain.	Lung capacity.	Increment, 14–15 years.	Per cent gain.	Lung capacity.	Increment, 14½–15½ years.	Per cent gain.	Lung capacity.	Increment, 15–16 years.	Per cent gain.	Lung capacity.	Increment, 15½–16½ years.	Per cent gain.	Lung capacity.	Increment, 16–17 years.	Per cent gain.	
163	13	8.7	194	....	....	210	47	28.8	....	....	....	255	45	21.4	....	....	....	151.
142	18	14.5	....	....	....	....	....	....	....	....	....	....	....	....	230	....	....	152.
138	8	6.2	160	....	....	160	22	15.9	170	10	6.3	192	32	20.0	220	50	29.4	153.
....	....	....	138	6	4.5	....	....	....	180	42	30.4	....	....	....	210	30	16.6	154.
....	....	....	178	30	20.2	....	....	....	188	10	5.6	....	....	....	194	6	3.2	155.
115	....	....	....	....	....	142	27	23.4	140	....	....	....	....	....	....	....	....	156.
....	....	....	....	....	....	225	....	....	248	30	13.8	....	....	....	270	22	8.9	157.
....	....	....	140	22	18.6	....	....	....	140	0	.0	....	....	....	182	42	30.0	158.
160	15	10.3	184	....	....	184	24	15.0	....	....	....	....	....	....	....	....	....	159.
132	....	....	....	....	....	....	....	....	168	....	....	....	....	....	186	18	10.7	160.
144	2	1.4	168	....	....	168	24	16.7	....	....	....	180	12	7.1	....	....	....	161.
182	44	31.9	200	....	....	210	28	15.4	215	15	7.5	255	45	21.4	265	50	23.3	162.
....	....	....	194	28	15.5	....	....	....	230	36	18.6	....	....	....	242	12	5.0	163.
....	....	....	202	30	17.6	....	....	....	234	32	15.8	....	....	....	262	28	12.0	164
170	22	14.9	202	....	....	202	32	18.8	....	....	....	232	30	14.9	....	....	....	165.
184	32	21.5	211	....	....	211	27	14.7	....	....	....	....	....	....	220	....	....	166.
....	....	....	182	18	11.0	....	....	....	218	36	19.8	....	....	....	230	12	5.5	167.
222	22	11.0	278	....	....	272	50	22.5	....	....	....	308	36	13.2	....	....	....	168.
172	....	....	....	....	....	....	....	....	220	....	....	240	....	....	....	....	....	169.
....	....	....	178	16	9.9	....	....	....	190	12	6.7	....	....	....	234	44	23.2	170.
....	....	....	214	16	8.1	....	....	....	258	44	20.6	....	....	....	268	10	3.9	171.
158	....	....	178	....	....	178	20	12.7	....	....	22.6	218	40	22.5	....	....	....	172.
....	....	....	212	20	10.4	....	....	....	260	48	22.6	....	....	....	....	....	....	173.
152	40	35.7	180	....	....	180	28	10.8	....	....	....	200	20	11.1	....	....	....	174.
172	14	8.8	200	....	....	200	28	16.2	....	....	....	230	30	15.0	....	....	....	175.
....	20.9	15.0	.....	20.4	12.9	.....	29.7	17.6	.....	26.3	14.0	.....	32.2	16.3	.....	27.0	14.3	Av.
....	10.1	....	.....	5.8	....	.....	6.7	....	.....	14.0	....	.....	8.2	....	.....	13.7	....	Av. var.
....	....	....	160	30	....	183	....	....	202	42	26.3	....	....	....	230	28	13.9	176.
....	....	....	180	30	20.0	182	....	....	....	....	....	....	....	....	240	....	....	177.
138	....	....	....	30	....	....	....	....	182	....	....	190	....	....	....	....	....	178.
....	....	....	218	66	43.4	....	....	....	254	36	16.5	....	....	....	268	14	5.5	179.
148	20	15.6	....	....	....	190	42	28.4	....	....	....	228	38	20.0	....	....	....	180.
....	....	....	190	30	18.7	....	....	....	212	22	11.6	....	....	....	250	38	17.9	181.
....	....	....	....	....	....	....	....	....	....	....	....	200	....	....	....	....	....	182.
....	....	....	192	12	6.7	....	....	....	216	24	12.5	....	....	....	272	56	25.9	183.
165	....	....	177	....	....	190	25	15.2	....	....	....	220	30	15.8	148	....	....	184.
....	....	....	208	32	18.2	....	....	....	240	32	15.4	....	....	....	256	16	6.7	185.
150	....	....	162	....	....	....	....	....	204	42	25.9	....	....	....	232	28	13.7	186.
212	48	29.3	218	....	....	....	....	....	....	....	....	260	....	....	256	....	....	187.
260	....	....	....	....	....	278	18	6.9	....	....	....	308	30	10.8	....	....	....	188.
160	18	12.7	....	....	....	200	40	25.0	....	....	....	232	32	16.0	....	....	....	189.
....	....	....	244	52	27.1	....	....	....	268	24	9.8	....	....	....	270	2	7.5	190.
190	18	10.5	....	....	....	212	22	11.6	....	....	....	260	48	22.6	....	....	....	191.
238	50	26.6	....	....	....	278	40	16.8	....	....	....	320	42	15.1	....	....	....	192.
....	....	....	220	....	....	....	....	....	245	25	11.4	....	....	....	265	20	8.2	193.
....	....	....	210	32	17.9	....	....	....	236	26	12.4	....	....	....	256	20	8.5	194.
208	....	....	....	....	....	228	20	9.6	....	....	....	218	−10	−4.4	....	....	....	195.
178	14	8.5	....	....	....	210	32	18.0	....	....	....	254	44	21.0	....	....	....	196.
....	....	....	196	26	15.3	....	....	....	212	16	8.1	....	....	....	....	....	....	197.
240	32	15.4	....	....	....	270	30	12.5	....	....	....	270	0	.0	....	....	....	198.
....	....	....	....	....	....	288	....	....	....	....	....	310	22	7.6	....	....	....	199.
172	14	8.9	....	....	....	210	38	32.1	....	....	....	238	28	13.3	....	....	....	200.
173.8	26.8	15.8	191.7	35.0	20.9	210	30.7	16.6	212.6	28.9	15.0	242.6	27.6	12.5	236.4	24.7	12.0	Av.
....	11.5	....	.....	12.0	....	.....	7.7	....	.....	7.3	....	.....	12.9	....	.....	11.4	....	Av. var.

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(B) INDIVIDUAL HEALTH NOTES.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts IIa and IIb (pp. 40, 53).[1]

Those appearing in the group of 100 in Tables 13 and 14 are: 3—136; 5—200; 6—190; 10—180; 11—115; 13—161; 14—155.

1. Excellent health; fine physique; astigmatism at 8½.

2. Pneumonia at 4; excellent health at 5. Measles, chicken pox, and whooping cough; shoulders round at last measurement. Parents American.

3. Health average at entrance and has had adenoids, bronchitis, and tonsillitis; tonsils removed; adenoids removed and arm broken at 6½; circumcised at 8 years 2 months; arm fractured at last measurement. Parents American.

4. Excellent health; has had measles, tonsillitis, chicken pox; left tonsil swollen when 13; tonsils normal when 15; eyes weak.

5. Adenoids removed at 12½; recovered from grippe at 13½; hearing in left ear defective; nervous; adenoid expression.

6. Average health; has had chicken pox, grippe, tonsillitis; anæmic at 14; tonsils slightly enlarged; gets dizzy and faint when compelled to stand still for long period of time.

7. Had double hernia at 5 years 4 months; wears truss; lordosis when 6½; eyes weak, and began to wear glasses when 9½. Mother Irish, father American.

8. At entrance has had chicken pox, whooping cough, measles, bronchitis; heart rate rather rapid; standing posture poor; out of school at — with typhoid fever; shoulders round; at 18 health good, but too fat.

9. Health good; shoulders round; recommended to see oculist. Parents American.

10. Appendix removed when 10; tonsils large and removal advised at 12 years 4 months; condition good at 13½; at 15 years 4 months was thin, anæmic, and had flat chest; eyes weak during last measurements and glasses fitted. Parents American.

11. Has had whooping cough, chicken pox; enlarged throat glands when 7½; nutrition unsatisfactory; adenitis on left side; tonsils enlarged between 9 and 10; round shoulders during last measurements. Parents American.

12. Good health during last measurements; has had pneumonia twice; adenoids removed; has lordosis.

13. Has had whooping cough, chicken pox, scarlet fever, malaria, measles; well nourished at 10 years 4 months; systolic muffled sound to heart at 17 years 8 months. Parents American.

14. Has had pneumonia, bronchitis, chicken pox, measles; uncontrolled nervous action; catarrhal tendency; shoulders, back, and spine irregular; at 10 catarrh of bowels, delicate, and ill most of the time; at 13 tendency to weak feet; at 14 glasses for near-sightedness.

15. Has had measles, chicken pox, mumps, pleurisy; health good at 13½; at 14 slight conjunctivitis; at 15 more so and at 16 full conjunctivitis; condition good at 17 years 3 months.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts IIIa and IIIb (pp. 41, 55).

Those appearing in the group of 100 in Tables 13 and 14 are: 1—146; 2—145; 5—144; 7—197; 8—186; 9—171; 10—163; 11—118; 13—103; 14—158; 15—102.

1. Had whooping cough when 7 years 11 months; corrective work begun for shape of back at 8; condition improved at 9 years 5 months; adenoids removed at 8 years 11 months; corrective gymnastic work continued.

2. Bronchial trouble and anæmic condition from second to fourth year; when 6½ had pleurisy and this continued until operation at 9 years 3 months, after which condition improved.

[1] The health notes for Charts Ia and Ib may be found on pp. 58, 60.

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3. At entrance had had chicken pox; tonsillitis at 12 years 5 months; broke wrist when 15; health good.

4. Has had bronchitis, chicken pox, measles, whooping cough; at 9 had muscular twitching of the entire body; improved at 11; much improved at 12.

5. Health good.

6. Health good at entrance. Parents American.

7. At entrance health good, but had had pneumonia; tendency to catarrh; from 10½ to 11½ well except for colds; nervous; follicular conjunctivitis; impediment in speech probably due to nasal obstruction; at 15 condition fair; flat chest.

8. At entrance health good, had had childhood diseases; tendency to biliousness (hereditary), weak stomach; at 11–12 tonsils enlarged; tendency to headache; at 13 tonsils normal; at 14½ condition good. Mother American, father Scotch.

9. At entrance health excellent, and had had measles, malaria, and scarlet fever; at 12 recovering from operation for appendicitis; out of school 4 weeks; follicular conjunctivitis; tonsils enlarged from 12–14; improved at 15; at 15 glasses for astigmatism; condition good. Mother American, father English.

10. Health good; at 18 shoulders round.

11. Has had grippe and pneumonia; entero-colitis; part nasal obstruction by adenoids and hypertrophied tonsils; tonsils removed; between 6½ and 7½ had measles, colds, and stomach trouble; at 8 had granular conjunctivitis on left lower lid; between 8 and 8½ bad colds; 10–11 tonsils enlarged; condition otherwise good.

12. At entrance health excellent; has had mumps, chicken pox, scarlet fever, whooping cough, measles, 4 or 5 attacks of tonsillitis; from 7 to 8 tonsils enlarged; tonsillitis, under care of physician; 8–9 health good; at 10 condition fair; at 11 shoulders round; has not grown; perfectly well; at 15 left cervical gland palpable.

13. Has had measles, whooping cough, several attacks of tonsillitis; at 6 internal strabismus; advised to see occulist; sensitive disposition; at 7 wearing glasses; at 8 condition good; heart slow and irregular; restless; follicular conjunctivitis; at 9 slight spinal curvature; adenoids and tonsils removed at 8½; nervous, imaginative, cries easily.

14. Health good at entrance; has had no diseases or injuries; at 11 nutrition moderate; at 13 had fall injuring ear, causing hemorrhage, but hearing not injured; at 14 condition fair; improved at 15. Parents American.

15. Health excellent at entrance; and has had measles, chicken pox, whooping cough; tendency to nervousness; condition good; slight spinal curvature.

Notes on physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts IVa and IVb (pp. 42, 55).

Those appearing in the group of 100, Tables 4 and 5, are: 2—95; 3—46; 4—38; 5—37; 6—20; 9—22; 10—55.

1. Health good; has had measles, chicken pox, bronchitis; heart overactive when 13 and gymnasium work suspended.

2. Health good.

3. Subject to colds; between 11 and 12 tonsils enlarged (note slight arrest in growth in height and weight and lung capacity); at 10 had measles.

4. Health good; slightly nervous heart. Parents American.

5. Health good; measles at 7 years 6 months (no apparent evil effect in growth); heart overactive at 9; slight eye trouble later. Parents American.

6. Health good; has had children's diseases. (No data to explain arrest at 8 years 6 months.)

7. Health good; wears braces on legs.

8. Health fair; has had eczema, pneumonia, whooping cough, chicken pox, measles, and mumps; subject to catarrh; asthmatic tendencies.

9. Health good.

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10. Health good; has had children's diseases; tonsils removed when 13 (note subsequent increases in growth in height and weight); menstruation began when 16. Parents American.

11. Health good; inclined to be nervous; subject to tonsillitis; eyes weak.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts Va and Vb (pp. 43, 56).

Those appearing in the group of 100 in Tables 4 and 5 are: 1—49; 3—97; 4—92; 9—17; 10—23.

1. At entrance health good; had had infantile diseases and pneumonia, adenoids removed; first menstruation at 11½; nervous temperament; back not strong; at 13 back straighter; hips prominent; at 13½ advised to improve standing.

2. Bad position; more exercise advised; joints flexible; has had pneumonia, measles, and chicken pox in early childhood; right arm broken three times; adenoids and tonsils removed between 11 and 11½ (note increase in height and weight following operation).

3. Thin and delicate until entering school; diphtheria when small; round shoulders during later school life (note flattening of height curve). Parents American.

4. Average health; father died of apoplexy; subject to catarrh and sore throat (note gradual decrease in weight curve). Mother American, father Danish.

5. Health very good, but appetite small; measles and whooping cough, but no apparent evil effects; slightly rapid heart beat at 11½. Parents American.

6. Health fair; has had measles, pneumonia, typhoid fever, chicken pox; shoulders round. Parents American.

7. Health good; standing position poor; studying very hard at 11.

8. Health good; standing position poor in later school life (note effect on height curve, but no effect in weight curve).

9. Health good from 10 to 15; heart slightly overactive; somewhat anæmic; spine slightly irregular; had jaundice at 17.

10. Health good. Parents American.

11. Health good; apparently late appearance of menstruation. Mother Swiss, father French.

12. Health good. Parents American.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts VIa and VIb (pp. 44, 56).

Those appearing in the group of 100 in Tables 4 and 5 are: 1—99; 3—42; 4—98; 6—40; 7—30; 9—72; 10—16; 11—10; 12—18.

1. Has had children's diseases with no apparent ill effect; grew "too fast" at 11 (note acceleration in height curve); at 14 was taking osteopathic treatment for backache (note arrest in growth in height and weight at 13½); appetite poor.

2. Has had scarlet fever, whooping cough, measles, chicken pox, mumps, tonsillitis, and enlarged glands; slight curvature of spine; weak heart at 17; a tall thin girl. (Compare curves in height and weight and small lung capacity.)

3. Anæmic, nervous; heart skipped 1 in 18 or 20 beats when 7; menstruation commenced at 13¼. Parents American.

4. Health good, but had pneumonia and malaria in early childhood; posture poor at 16.

5. Health good; has had children's diseases; ill between 13 and 14; posture poor and shoulders round. (Note drop in height curve after 14.) Parents American.

6. Health good.

7. Small; adenoids removed when about 8 (note slight arrest in growth in height and weight); at 10 had typhoid fever (note acceleration in weight following this period).

8. Health on entering school good and had had children's diseases; out of school at 14 with typhoid fever (note slight arrest in height and marked arrest in weight); fat with stooped shoulders.

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9. Health good; shoulders round (note flattening of height curve).

10. Health good; has had pneumonia, scarlet fever, and typhoid fever; very thin at 10 and posture poor at this time; flat feet. Parents American.

11. Tonsils and adenoids removed when 6; condition good, but takes cold easily. Parents American.

12. Ruptured and delicate; when 7 had severe case of scarlet fever.

13. Health good; has had pneumonia, diphtheria, and other diseases as a child; stomach trouble; posture poor.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts VIIa and VIIb (pp. 45, 57).

Those appearing in the group of 100 in Tables 4 and 5 are: 1—100; 2—86; 3—81; 4—83; 5—74; 6—73; 7—56; 8—65; 9—59; 10—52; 11—51.

1. Had pneumonia previous to entering school, and adenoids removed; health good; first menstruation at age of 12; back not strong; standing posture poor at 14 and later (note flattening of curve in height); nervous temperament; more outdoor exercise advised. Mother American, father English.

2. Had several children's diseases; liver and nervous troubles; from 14 to 15, stomach trouble (note arrest on increase in weight curve).

3. Health good all the time; standing posture poor.

4. Delicate and nervous; adenoids removed just before 13 (note subsequent increase in growth, in height, and weight). Parents American.

5. Mother died of tuberculosis; enlarged glands on both sides of neck; catarrh; nervous (note decided arrest in growth in height after 13 and decrease in weight after 15½ years). Parents American.

6. Has had children's diseases; hereditary tendency to bleed; irregular menstruation periods. (Note arrest in growth in height after 12 years and in weight after 14.)

7. Has had malaria and children's diseases; had an apparent attack of appendicitis between 11 and 12 (note effect on height); menstruation began between 15 and 16. Parents American.

8. Has had chicken pox, measles, whooping cough, scarlet fever, tonsillitis; health good when entering school, but later stomach trouble and anæmic (note arrest in growth in weight and height). Parents American.

9. Health good in early school life; later anæmic; weak spine; jaundice at 17. (Note arrest in growth in height and weight after 13.) Parents American.

10. Health apparently good. (Note arrest in growth in height.)

11. Has had children's diseases, whooping cough, chicken pox; tonsils enlarged at 13¼. Shoulders round at 15¼. Slight lateral curvature; heart rapid; nearsighted. (Note light weight.) Mother American, father German.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts VIIIa and VIIIb (pp. 46, 57).[1]

Those appearing in the group of 100 in Tables 13 and 14 are: 1—148; 3—142; 4—193; 6—157; 9—176; 10—162; 11—151; 12—117.

1. Had pneumonia between 9 and 10; heart weak. Parents and grandparents American.

2. Parents and grandparents American.

3. Parents and grandparents Russian.

4. Parents American, maternal grandparents English, paternal grandmother English, paternal grandfather American.

5. Parents and grandparents Russian.

[1] In Charts VIII-XII, inclusive, the nationality of parents and grandparents is included in the health notes. In most cases in Charts VIII and IX data on the physical condition of the individuals included were entirely lacking.

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6. Parents and grandparents German.

7. Mother German, father American, grandparents German.

8. Parents and grandparents German.

9. Parents American, maternal grandmother American, maternal grandfather Welsh, paternal grandmother German-French, paternal grandfather German.

10. Parents American, maternal grandmother Scotch, maternal grandfather English, paternal grandparents German.

11. Mother Danish, father American, maternal grandparents Danish, paternal grandmother French, paternal grandfather German.

12. Anæmic; trouble with throat and glands at 10; nervous. Parents and grandparents American.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts Xa and Xb (pp. 48, 58).

Those appearing in the group of 100 in Tables 4 and 5 are: 2—89; 3—48; 6—78; 7—19; 9—66; 10—64; 11—1; 12—57.

1. Apparently normal. Parents American, grandparents German.

2. At 12 had chicken pox, subject to colds in the head and nose bleed; at 14 subject to colds, loss in weight. Mother Swedish, father Norwegian, maternal grandparents Swedish, paternal grandparents Norwegian.

3. Before 6 had had measles and chicken pox; subject to colds and earache; at 11 very tall. (Compare height and weight.) Parents American, maternal grandmother Scotch-Canadian, maternal grandfather American, paternal grandparents American.

4. At 11½ had had mumps, measles, and tonsillitis; at 14 good physical condition. Parents American, maternal grandparents German, paternal grandparents German-American.

5. Has had measles, mumps, whooping cough, and chicken pox; at 13½ had grown rapidly; muscular system weak. Parents and grandparents American.

6. Before 12 had had mumps, measles, and whooping cough; subject to sore throat, cold, headaches, earache; at 15 slightly underdeveloped. Parents American, grandparents German.

7. At entrance poorly nourished; at 9½ had had whooping cough and chicken pox; at 11 below normal weight; at 12½ had measles. Parents and grandparents American.

8. At entrance had had chicken pox; condition normal. Parents and grandparents American.

9. At 11 general condition good, and had had grippe, mumps, measles, earache; subject to colds; at 12 condition excellent; at 13 had bronchial colds; at 13½ condition improved after removal of adenoids; at 16 general health excellent. Parents American, maternal grandmother American-English-French, maternal grandfather American-English-Scotch, paternal grandparents American-English.

10. At entrance pale, nervous, oversensitive, taking treatment for nose and throat, no appetite; before 13 had had mumps, whooping cough, chicken pox, and diphtheria; after 16 condition good. Parents American, maternal grandparents Welsh, paternal grandparents American.

11. Health excellent. Parents and grandparents German.

12. Before 15 had had measles and chicken pox; subject to bilious attacks and headaches. Mother German, father German-American, grandparents German.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts XIa and XIb (pp. 49, 59).

Those appearing in the group of 100 in Tables 4 and 5 are: 1—43; 2—82; 5—96; 7—91.

1. At 10 had chicken pox; subject to cold in the head. Mother American, paternal grandmother Irish, paternal grandfather English.

2. Has had measles, chicken pox, mumps; subject to sick headaches at 14. Parents American, maternal grandparents English, paternal grandparents German.

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3. Has had measles, mumps, scarlet fever, diptheria; adenoids removed between 11 and 12; at 13 subject to headache from eyes, sore throat, tonsillitis, backache, and nose bleed.

4. Good health.

5. Poor carriage; arrested development. Parents American, both grandmothers American, both grandfathers German.

6. Mother Canadian, father American, maternal grandmother American, maternal grandfather Canadian, paternal grandparents English.

7. At 14 had had mumps, measles, whooping cough, chicken pox, and penumonia. Parents American, maternal grandmother American, maternal grandfather English, paternal grandmother American, paternal grandfather Irish.

8. Had measles at 14½ and later hernia. Parents American, grandparents American of Irish descent, paternal grandparents American, of Holland, Scotch, French, and English descent.

9. General condition good. Parents and grandparents American.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts XIIa and XIIb (pp. 50, 59).

Those appearing in the group of 100 in Tables 4 and 5 are: 3—41; 7—21; 8—15; 9—13; 10—62.

1. At entrance had had measles, whooping cough, chicken pox; very heavy, fat, slow of movement. Parents American, grandparents German.

2. At entrance had had mumps, chicken pox, and measles. Parents American, maternal grandmother American, maternal grandfather American-Canadian, paternal grandparents American.

3. At 12 had had scarlet fever. Parents and grandparents American.

4. At entrance had had measles, whooping cough, chicken pox, grippe; tonsils removed at 7½; between 9 and 10 suffered much colds; after this improvement. Parents American, maternal grandmother American, maternal grandfather American-Canadian, paternal grandparents American.

5. Before 8 had had measles, whooping cough, chicken pox; fat, overweight.

6. At entrance had had whooping cough, measles, scarlet fever, chicken pox; between 12 and 13 heart trouble, out of school three-fourths of the time. Mother German-American, father Norwegian-American, maternal grandparents German; paternal grandparents Norwegian.

7. At 7 had had mumps; at 13 condition normal. Parents American, maternal grandmother English, maternal grandfather Welsh, paternal grandmother Irish, paternal grandfather Scotch-English.

9. Between 8 and 9 had pneumonia; poorly developed; after 11 improvement; at 13 eyes poor; underweight.

10. At 11½ had had diphtheria, chicken pox, mumps, measles, pneumonia; subject to rheumatism; slightly improving.

11. At 15 had had whooping cough, measles, subject to headache and sore throat; at 17 sore throat.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts XIIIa and XIIIb (pp. 51, 60).

Those appearing in the group of 100 in Tables 4 and 5 are: 1—50; 2—44; 4—36; 5—88; 6—27; 8—6.

1. Strong and healthy; adenoids and tonsils removed just before 12; first menstruation at 12.

2. Tonsils enlarged from 10 to 11; first menstruation at 12 years 5 months. Parents and grandparents American.

3. Weak costal arches; first menstruation at 13. Parents and grandparents American.

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4. Adenoids removed at 9 years 8 months, and again at 13½; first menstruation at 13 years 9 months. Parents American, maternal grandparents American, paternal grandmother American, paternal grandfather Canadian.

5. Stooped shoulders, but general health good; first menstruation at 15 years 3 months 17 days.

6. Poor health at 12 years 5 months; first menstruation at 16 years 1 month. Parents American, maternal grandmother American, maternal grandfather English, paternal grandparents American.

7. Adolescent heart at 16; otherwise normal; first menstruation 14 years 6 months.

8. Had first menstruation at 14. Mother American, father German-American, maternal grandparents American, paternal grandparents German.

9. First menstruation at 16 years 7 months. Mother American, father Canadian, maternal grandparents American, paternal grandparents Scotch.

10. Enlarged tonsils at 14; excused from gymnasium work at 15; first menstruation at 13 years 4 months.

Notes on the physical condition of individuals whose curves in height, weight, and lung capacity are given in Charts XIVa and XIVb (pp. 52, 60).

Those appearing in the group of 100 in Tables 4 and 5 are: 6—32; 12—85.

2. Stoop shoulders at 9; arches of foot broken between 12 and 13. Parents and grandparents American.

3. Tonsils enlarged after 11, removed at 12 years 9 months; posture poor; first menstruation at 12 years 7 months. Parents and grandparents American.

4. Tired, weak; matured at 15. Mother American, father Canadian, maternal grandparents Scotch, paternal grandmother English, paternal grandfather Scotch.

5. General condition excellent; at 12 had mumps.

6. Health in infancy poor; had rickets; at 10 attack of measles; enlarged tonsils after 10, at 14 left tonsil still enlarged; first menstruation at 12 years 9 months. Mother English-Scotch, father German, maternal grandmother Scotch-English, maternal grandfather English, paternal grandmother English, paternal grandfather German.

7. Apparently normal.

8. Weak heart; otherwise normal. Parents and grandparents American.

9. At 6 had measles; at 10 adenoid growths; tonsillitis between 10 and 11; first menstruation at 13 years 1 month. Parents and grandparents American.

10. Apparently normal; poor eyesight. Parents and grandparents American.

11. Nothing unusual. Parents and grandparents American.

12. At 12 spine very crooked, at 14 straight; menstruation began at 14. Parents and grandparents American.

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(C) INDIVIDUAL WEIGHT-HEIGHT AND VITAL INDICES.

TABLE 23.—*Weight-height and vital indices.*[1]

[The hundredths denote weight-heights; the thousandths denote vital indices.]

FOR CHARTS IIa and IIb (HORACE MANN BOYS).

	Years of age.																								
	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	15½	16	16½	17	17½
1	0.19		0.21		0.23		0.24		0.24																
	.069		.067		.061		.067		.070																
2		0.19			.21			0.22		0.23		0.25													
		.049			.054			.062		.062		.060													
3	.16	.17			.18	0.18		.19		.21		.23		0.24		0.26				0.27					
	.061	.061			.056	0.69		.073		.070		.068		.071		.068				.074					
4																.28	0.31		0.34		0.37		0.40		0.41
																.063	.060		.052		.077		.075		.075
5													0.25		0.27		.28		.29		.34		.37		.38
													.053		.056		.055		.055		.057		.058		.055
6											0.19		.20	.20			.21		.24	.27		0.28			.28
													.077	.077			.079		.087	.088		.088			.097
7	.20		.19		.19		.20		.21		.22	.24													
	.052		.061		.061		.063		.064		.063	.065													
8																									
9		.18		0.19				.20		.22															
		.060		.066				.060		.060															
10													.18		.19		.21		.23		.26		.29		.32
													.065		.064		.065		.066		.070		.075		.071
11	.16		.17		.18		.20		.20		.21		.22		.24		.27		.30			.34			
			.060		.066		.065		.063		.070		.065		.066		.066		.064			.066			
12	.17	.17		.17		.19		.23		.25		.25				.28									
	.019	.049		.061		.060		.058		.057		.057				.052									
13							.20		.21		.22	.23			.25		.26		.28		.28		.31		.35
									.064		.064	.057			.056		.062		.058		.064		.059		.066
14								.17		.18		.19		.21		.24		0.27		.29		.33		0.33	
								.052		.062		.059		.052		.056		.057		.062		.058		.060	
15															.25		.26		.27	.29		.32	.34		.35
															.066		.072		.066	.068		.074	.078		.078

[1] The table for charts Ia and Ib may be found on page 63.

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TABLE 23.—*Weight-height and vital indices*—Continued.

FOR CHARTS IIIa and IIIb (HORACE MANN BOYS).

	Years of age.																							
	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	15½	16	16½	17	17½
1				0.21		0.23		0.25	0.25	0.26	0.27	0.28		0.34		0.35			0.38						
				.060		.061		.062	.063	.060	.063	.065		.061		.053			.067						
2			0.18		0.19		0.21		.22		.24		0.25		0.27										
			.066		.066		.063		.064		.064		.065		.065										
3													.25		.25	.28					0.33		0.37		
													.052		.061	.057					.061		.062		
4								.21		.21		.23		.24		.26		0.29		0.33			.37		
								.054		.063		.066		.066		.062		.062		.063			.070		
5					.20				.23		.23		.25		.30		0.33		.37						
								.061	.056		.063		.055		.052		.046		.050						
6		0.19	.21			.20	.21			.24	.25			.27		.29					.00				
		.037	.045				.048			.046	.046			.044		.043					.054				
7											.22		.23		.24	.24		.27		.29		.30			
											.055		.062		.057	.059		.061		.063		.064			
8											.19		.20		.21	.23			.26	.27		.29		.32	
													.051		.061	.059			.058	.059		.064		.064	
9												.23		.25		.28		.31		.30		.31		.33	0.33
												.056		.065		.064		.066		.072		.071		.078	.062
10													.19	.19		.21		.24		.27		.30		.32	.33
													.068	.076		.067		.073		.071		.073		.071	.072
11			.17		.18		.18		.19	.20		.20		.21		.23									
			.056		.056		.063		.067	.055		.062		.063		.061									
12		.14				.16		.17		.17		.18		.20						.21		.23			
						.060		.062		.061		.066		.060						.055		.058			
13		.16		.17		.17		.18		.19		.20		.20											
		.046		.050		.048		.044		.043		.045		.047											
14										.19		.19				.23		.22		.23		.26	.29	.32	
												.059				.062		.060		.066		.065	.063	.062	
15					.16		.17		.17		.18		.19		.19		.21		.23						
							.068		.070		.070		.065		.071		.065		.063						
Average	0.179	.176	.188	.187	.195	.195	.204	.202	.201	.218	.23	.224	.232	.234	.253	.259	.273	.269	.302	.274	.328	.310	.351	.334	.352
Average	.0516	.0518	.0583	.0564	.0588	.0653	.0622	.0578	.0629	.0681	.0612	.0610	.0616	.0621	.0613	.0596	.0613	.0610	.0622	.0652	.0639	.0668	.0681	.0655	.0730

FOR CHARTS IVa and IVb (HORACE MANN GIRLS).

1							0.24			0.25		0.25	0.29		0.30		0.31		0.35		0.40		0.40		0.44
							.046			.052		.058	.062		.060		.058		.052		.063		.053		.051

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2							.18		0.20		0.22	.20		0.27		0.29			.30	0.33	.33		.34		.34
							.025		.055		.052	.064		.047		.048			.064	.055	.056		.055		.057
3			0.24		0.23		.26		.28		.30		.34		.36		.36		.36						
			.039		.057		.045		.050		.047		.043		.056		.057		.058						
4			.19		.19		.20		.22		.22		.26		.30		.32								
			.049		.054		.055		.053		.060		.053		.062		.065								
5		0.17			.18	0.19			.20		.21		.23		.24	.26									
		.059			.057	.058			.064		.064		.063		.063	.066									
6				0.18			.20		.20		.24	.26		.30	.34		.33		.37	.39		0.41			
				.030			.043		.043		.040	.041		.040	.037		.037		.035	.037		.035			
7								.22				.23		.25		.28		0.30			.34	.37			
								.047				.056		.053		.057		.053			.051	.051			
8											.22		.22		.23					.28		.31		.34	0.33	.33
											.052		.056		.060					.052				.050	.054	.053
9		.18			.18	.19		0.20		.23		.23		.24		.27		.31		.31						
					.055	.055		.056		.055		.056		.053		.055		.049		.053						
10											.18		.18		.19	.19		.21		.24				.25		.27
											.049		.055		.053	.054		.055		.056				.059		.057
11						.20		.18	.19		.20		.22		.25		.30		.33		.36					
						.034		.052	.061		.060		.054		.052		.048		.050		.048				.045		

FOR CHARTS Va and Vb (HORACE MANN GIRLS).

1	0.16		0.18	0.19		0.19		0.24		0.25		0.27		0.28		0.31		0.36						0.39						
			.038	.050		.050		.040		.046		.038		.048		.046		.047						.049						
2										.20		.21		.23		.25		.29		0.30				.29						
										.066		.069		.060		.069		.069		.073				.063						
3									0.19		0.22		0.26	.24		.27		.30		.33				.35		0.36				
									.055		.054		.048	.063		.060		.060		.057				.057		.053				
4												.25		.26		.29		.32		.38		0.34			0.35	.34				
												.052		.053		.057		.054		.048		.058			.057	.059				
5	.22		.22		0.24		0.26		.27		.30		.31		0.33															
	.046		.058		.056		.056		.056		.057		.053		.052															
6	.16					.16		.17		.18		.19																		
	.054					.060		.068		.069		.061																		
7		0.20		.21		.24		.29		.33		.32		.34		.40		.41												
		.039		.039		.040		.042		.041		.043		.040		.040		.042												
8														.22		.24		.25		.27		.29			.29	.30				
														.061		.058		.059		.060		.057			.064	.062				
9				.22		.23		.23		.25		.25		.27				.33		.37				.39						
				.038		.045		.046		.040		.047		.050				.050		.045										
10			.17		.18		.17		.18	.18		.20		.22		.25		.29		.31						.31				
					.077		.079		.083	.085		.078		.060		.079		.069		.067										
11															.26		.28		.33		.34			.36		.38				
															.049		.046		.046		.040			.050		.045				
12	.11		.17		.19		.19		.20		.22		.23		.27		.29													
			.054		.060		.063		.059		.052		.060		.059		.057													

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TABLE 23.—*Weight-height and vital indices*—Continued.

FOR CHARTS VIa and VIb (HORACE MANN GIRLS).

	Years of age.																							
	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	15½	16	16½	17	17½
1										0.22		0.25	0.27		0.29		0.30		0.30		0.30		0.32		
										.051		.060	.052		.057		.059		.058		.062		.058		
2																	.29		.32		.33		.35		0.36
																	.049		.047		.051		.049		.049
3					0.19		0.20		0.23		0.23		.25		.27		.30		.33						
					.061		.061		.052		.058		.049		.053		.059		.060						
4								0.23		.27		.28	.30		.30		.40		.43		.44		.48		
								.046		.048		.053	.056		.049		.051		.051		.051		.040		
5													.23			0.26	.28		.30		.32		.34		.32
													.065			.065	.063		.067		.062		.062		.067
6		0.18			.20			.23		.23		.24		0.26		.27		0.29		0.31					
					.065			.051		.062		.056		.059		.062		.055		.051					
7				0.18		0.19	.19			.22		.26		.29		.32		.34		.37	.36				
				.043		.053	.057			.051		.046		.045		.043		.041		.044	.053				
8							.27			.29	.32	.35		.40		.43				.42		0.47			.48
							.039			.041	.037	.038		.036		.040				.046		.043			.037
9							.19		.21		.21	.22		.23			.26	.28		.31		.32		0.33	
							.054		.059		.059	.049		.053			.053	.050		.047		.047		.048	
10		.14		.16		.16		.17		.19		.20		.22		.25		.26							
		.019		.059		.053		.049		.061		.051		.043		.059		.057							
11				.20		.29		.21		.22		.24		.26		.29		.31							
				.048		.050		.048		.049		.053		.048		.050		.044							
12	0.13		0.14		.15		.16		.17		.19		.20		.23		.28								
			.040		.044		.054		.055		.055		.054		.057		.053								
13																		.22		.24		.26	.27	.27	.28
																		.054		.049		.054	.054	.052	.057

FOR CHARTS VIIa and VIIb (HORACE MANN GIRLS).

1													0.27			0.26	0.33	0.35			0.35		0.34		0.33
													.047			.049	.040	.040			.044		.046		.047
2											0.22	0.23		0.27		.27		.29		0.30		0.30		0.34	
											.060	.063		.063		.060		.066		.061		.068		.067	
3										0.30			.29	.30		.31		.36		.32	.37	.34		.37	
										.084			.042	.044		.048		.042		.039	.052	.052		.050	
4										.19		.19		.21		.22	.24	.26		.28		.30		.32	
										.063		.062		.060		.065	.060	.067		.063		.065		.061	

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5										0.21	.050		.25	.046		.28	.044		0.32	.044		.34	.044		0.34	.047		.39	.040		.36	.048		.40	.040
6									0.20	.050		.23		.050		.25	.041		.29	.045		.33			.35	.044		.33	.050		.33	.051		.32	.053
7											.20					.22	.044		.22	.066	.22	.060		.27	.051		.28	.057		.30	.058		.32	.056		.32	.060
8													.21	.050		.23	.055		.25	.054	.24	.055		.28	.055		.28	.060		.28	.061		.28	.063	
9									.18	.056			.19	.060	.21	.054			.23	.060		.27	.060		.28	.057		.29	.058		.27	.061		.28	.062	.27
10									.19	.056		.23		.048		.24	.050		.26	.046		.29	.048		.31	.048		.36	.046		.36	.044		.37	.045	.062
11													.18	.053					.18	.065		.18	.072	.20	.075		.23	.075		.22	.075	.23	.074	.24	.073	.24	.079	
Average	0.156	0.174	0.187	01.91	0.193	0.195	0.208	.187	.225	.216	.226	.240	.255	.245	.274	.278	.298	.302	.310	.323	.337	.325	.342	.314	.364													
Average	.0500	.0390	.0463	.0434	.0837	.0498	.0520	.0507	.0567	.0530	.0532	.0538	.0533	.0531	.0542	.0548	.0539	.0530	.0539	.0526	.0535	.0548	.0539	.0580	.0535													

FOR CHARTS VIIIa and VIIIb (FRANCIS W. PARKER BOYS).

1				0.19	.056	0.19	.029			0.21		0.22	0.22	.070	0.23	.074	0.23	.063		0.25	.061	0.26	.066									0.36	.067		
2										.21		.22	.21	.066	.22	.064	.23	.063				.24	.062		0.26	.062		0.29	.070							
3			0.21			.22		0.24	0.26	.052			.30	.050	.31	.050	.31	.052	0.32	.36	.050	.37	.050	0.41	.050	.41	.050	0.43	.050							
4																				27	.054				30	.055		.32	.33		0.36		0.37	.062		0.40	.061	
5									.24	.061	.24	.061	.26	.063	.31	.055				.33	.053	.33	.055	.34	.052	.34	.060	.37	.059	.39	.058	0.43	.056	.43	.061				
6											.22	.050	.22	.055			.23			.23				.25	.059	.26	.063						.32	.069	.36	.069		.37	.071	0.35	.074
7								.19	.19	.056	.20	.056	.20	.060	.21	.058				.23	.060	.25	.057	.24	.059	.26	.058	.28	.060	.29	.064	.31	.065	.32	.070					
8																								.24	.080	.25	.065	.28				.29		.31	.069	.34	.070	.35	.065	.35	.070
9																				.22	.066			.23	.059				.25	.27	.30	.055	.32	.056	.32	.060		.33	.065	.34	.064
10																		.22				.21				.23	.065			.28	.067	.29	.069	.30	.068	.33	.063	.34	.072	.35	.070	
11																				.21	.061	.22	.055	.23	.056	.26	.062			.28	.061	.29	.066	.31	.065			.33	.068		.34	.071
12				.16	.056		.16	.053							.17	.071	.18	.064	.19	.066		.19	.066																		

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TABLE 23.—*Weight-height and vital indices*—Continued.

FOR CHARTS IXa and IXb (FRANCIS W. PARKER BOYS).

	Years of age.																								
	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	15½	16	16½	17	17½
1		0.19	0.19			0.19	0.19	0.19	0.20	0.21		0.23	0.24	0.24	0.25	0.25	0.28	0.29		0.32	0.36				
		.050	.050					.050	.051	.060		.061	.056	.054	.066	.069	.070	.072		.072	.063				
2				0.21	0.22			.22	.23	.23	0.24	.25	.27	.29	.29		.28	.30	0.33		.35				
				.040	.043					.055	.057	.057	.054	.053	.055		.057	.059	.055						
3														.23			.25		.28	.32	.32	0.32	0.33		
														.075			.065				.073	.080	.032		
4															.24		.24		.29	.30	.31	.32			
																				.062	.060	.033			
5												.22	.22	.23	.23	.25		.29	.32						0.35
														.066	.065	.059		.067	.067						.070
6					.18	.18					.22	.23	.24	.24	.24		.27	.30	.30						.37
					.096	.090							.060	.070	.67		.057	.063	.060						.075
7													.21		.23		.24	.25	.26	.28	.29		.31	0.32	
															.058				.064	.061	.062		.064	.040	
8			.18		.18		.20	.20	.20		.21	.22		.23		.25	.26	.28							
			.094				.050	.053	.057		.054	.060		.048		.057	.052	.056							
9														.24	.24	.25	.25	.28		.30	.32			.36	.37
																.076	.071	.057		.060	.054			.062	.069
10											.20	.20	.21	.22		.23	.24	.24		.27	.28	.34	.30		
											.059	.059	.055	.058		.063	.052	.058		.058	.060	.057	.060		
11									.19	.20			.20	.21	.21	.21	.22		.23	.24	.27	.27	.29	.29	.30
									.026	.028					.070	.060	.060		.065	.075	.063	.062	.067	.072	.075
12		.18	.19					.20	.21	.21		.22	.24	.23	.25		.26	.26	.26	.29					
		.075	.090					.045	.045	.068		.068	.064	.066	.060		.064	.060	.072	.045					
13															.21	.21		.24	.24		.25	.25	.29	.30	.33
																		.049	.054		.060	.056			.062
14				.18			.18	.20	.20	.20		.20	.29	.22	.22	.21	.22		.24						
				.098				.059		.050			.039	.056	.058	.060	.060								
Average		.185	.192	.185	.198	.192	.204	.206	.211	.223	.232	.227	.240	.246	.246	.256	.264	.222	.287	.302	.317	.323	.322	.340	.344
Average		.0625	.0780	.0625	.0560	.0715	.0510	.0536	.0494	.0575	.0602	.0602	.0557	.0631	.0606	.0605	.0607	.0591	.0630	.0620	.0634	.0612	.0618	.0630	.0700

FOR CHARTS Xa and Xb (FRANCIS W. PARKER GIRLS).

1							0.20	0.21		0.22	0.24	0.24	0.26	0.27	0.26	0.30		0.31							
								.042		.044	.050	.063	.060	.057	.051	.051		.037							

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2										.23			.23	.23	.25		.25	0.29		0.28	0.28		0.30	0.32	0.32	0.31
										.051					.060		.060	.052		.054	.060		.060	.058	.053	.054
3			0.16		0.17	0.17	.17	.18	0.19		.19	.19	.20	.21				.24		.25							
			.045				.063	.065	.063		.060	.063	.070	.067				.066		.056							
4										.21		.23	.24	.24	.26	.26			.28	.31		0.34					
										.050				.061	.058	.065			.059	.060		.060					
5																		.24	.24	.29	.27	.28		.29	.30	.30
																		.070	.072	.051	.054	.058			.061	.062
6								.17		.18	.18	.19	.20	.20		.22	.24			.26	.27	.28	.27	.28		
								.064				.061	.080	.060		.060	.060			.061	.056	.063	.059	.060		
7				0.17	.16			.18	.18	.18	.19	.19		.22	.22	.24	.26	.25			.31	.29	.29				
				.053	.070					.077	.080	.079		.067	.080	.080	.080	.082			.070	.074	.072				
8		0.17	.18	.18		.18		.20	.22	.21		.22	.24	.26	.27	.29											
						.049		.039	.055	.064		.055	.053	.055	.061	.054											
9						.18	.19	.20		.21	.21	.24	.24	.25		.29	.31	.33	.36	.37	.35	.38	.45	.41		
						.050	.060	.050				.052	.061	.057		.057	.060	.058	.064	.064	.059	.055	.055	.047		
10										.19	.19	.19	.20	.20		.24	.27	.27	.27	.28		.30	.30	.32	.34	
										.085	.084	.085	.058	.059				.060	.060	.060		.054	.054	.053	.051	
11			.15	.17			.17	.17	.17	.18	.19		.19	.20	.22	.23	.23	.26	.27	.28	.29						
			.053	.055					.060	.063	.051		.054	.056	.034	.036	.036	.032	.036	.035	.034						
12												.18	.20	.20	.21	.19		.22	.23	.25	.25		.27	.24	.29	
														.059	.055	.062				.060	.058		.060	.060	.065	

FOR CHARTS XIa and XIb (FRANCIS W. PARKER GIRLS).

1				0.19	0.19	0.20		0.20		0.20	0.21	0.21	0.22	0.27	0.26		0.29	0.31		0.28		0.31						
				.041	.053	.032					.060	.068	.064	.058	.056		.058	.051		.063		.060						
2										.18	.19	.20	.20	.20		0.24	.25	.25	0.27	.28		.28	0.28	0.28	0.28	0.29		
												.056	.065	.056				.052	.054	.050		.052	.058	.057	.060			
3							.20	0.23		.23		.26	.28	.29	.32	.31		.34	.36		0.37							
							.058	.048		.050				.050	.051	.053		.053	.050		.061							
4								.20	.22		.23	.23	.23		.25	.28	.28	.28	.29	.32								
							.017	.058	.059		.059	.058	.059		.061	.061	.062	.067	.068	.059								
5										.23	.25	.26	.28	.27		.31	.32	.31	.32	.33	.34	.34	.33	.33	.34			
										.070	.072	.050	.040	.048				.053	.050	.052	.045	.052	.056	.057	.055			
6									.19			.22	.23	.25	.28	.27	.27	.28		.30								
									.052			.047	.049	.051	.050	.052	.057	.060		.041								
7															.25		.26	.30	.33	.33	.35		.35	.34	.36			
															.060				.056	.058	.059		.055	.060	.060			
8									.20	.21	.21		.23	.24	.26	.27	.30		.31	.30								
									.061	.055	.057				.066	.060	.053		.056	.062								
9									.20	.20	.20	.20	.22	.25	.23	.25		.26	.29		.32	.33						
												.061	.055			.064		.060	.057		.057	.056						
Average		0.17	0.163	.177	.173	.182	.180	.191	.200	.217	.206	.216	.226	.273	.254	.261	.270	.280	.293	.295	.316	.311	.318	.317	.318			
Average			.049	.0496	.0615	.0436	.0615	.0537	.0568	.0609	.0636	.0598	.0587	.0575	.0569	.0575	.0594	.0568	.0548	.0562	.0543	.0577	.0567	.0560	.0581			

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TABLE 23.—*Weight-height and vital indices*—Continued.

FOR CHARTS XIIIa and XIIIb (UNIVERSITY OF CHICAGO GIRLS).

	Years of age.																								
	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	12½	13	13½	14	14½	15	15½	16	16½	17	17½
1			0.21	0.22	0.23	0.25	0.25			0.29			0.37	0.39			0.40					0.40	0.41		
			.055	.052	.051	.050	.039						.033	.022			.050					.061	.051		
2					.20	.22	.21	0.22		.24		0.26	.27	.28											
						.040		.046		.058		.056	.060	.059											
3						.19	.20	.21	0.22	.22			.25	.27		0.29	.31	0.32	0.33		0.34		.33		
							.042							.050		.055	.050	.052	.050		.048		.058		
4			.19		.19	.20	.20		.20	.23		.23	.23		0.25	.26	.27								
			.041			.023			.040	.050		.066	.075		.061	.060	.061								
5													.25			.31		.34	.34	0.34	.35		.36	0.36	0.38
													.026					.033	.033	.038	.035		.036		.040
6					.19	.18	.18	.19	.20	.20		.20			.21	.21	.21		.23		.27	.27			
					.052	.060	.056	.060	.049						.060	.036	.039		.057		.054	.054			
7								.19	.19		0.20		.20	.21	.20		.24	.24	.20			.28			.31
								.053			.050						.045	.050	.054			.050			.050
8		0.15			.16		.16	.17	.17		.18			.19	.20	.21		.23							
		.035					.050	.053	.050		.060			.055	.055	.053		.053							
9																		.22	.23	.23		.24	.27	.28	.29
																		.056	.052	.054		.063	.061	.057	.058
10								.21			.21	.21		.23	.24			.28	.30	.30	.31	.31			
														.061	.052			.063	.054	.061	.053	.058			

FOR CHARTS XIVa and XIVb (UNIVERSITY OF CHICAGO GIRLS).

1																									
2						0.18		0.19	0.19					0.24		0.26		0.29		0.30		0.30			
						.045		.041						.059		.070		.068		.067		.071			
3									.22	0.23		0.24	0.28		0.33										
									.040	.047		.050	.044		.047										
4																			0.23	.24			0.26	0.27	0.26
																			.043	.049			.050	.051	.053
5										.22	0.24	.23		.24	.25	.26	0.27		.28						
										.041	.050	.054		.058		.060	.060		.063						
6				0.19		.19		.20	.21		.23		.23		.26	.28	.34	.34							
				.029							.046		.041		.033	.048	.046	.050							

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7											.21	.20	.23	.23	.24									.32
											.050	.050	.054	.052	.045									0.05
8		0.17				.17	0.19		.20		.21	.22				.26		.30						
											.069	.069				.069		.060						
9						.18	.16	.19	.20			.22	.23		.26	.27	.30			.34		.32		
						.046							.052		.052	.068	.058			.051		.057		
10							.15	.21	.20		.30			.25							0.31	.32		
								.061	.052		.035			.057							.045	.046		
11																.21	.24	.28			.30		.29	.32
																.045	.058	.054			.056		.057	.048
12													.19	.20				.23	.24	.25			.27	
													.040					.030	.034	.033			.057	
Average		.16	0.20	.205	0.194	.196	.188	.198	.200	.232	.224	.224	.245	.248	.243	.254	.286	.279	.252	.254	.313	.305	.312	.307	.312
Average		.035	.098	.0405	.0515	.0440	.0467	.0523	.0462	.049	.0516	.0575	.0467	.0527	.0540	.0553	.0518	.0517	.0477	.0504	.0485	.0563	.0528	.0520	.0502

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(D) INDIVIDUAL SCHOOL MARKS AND GRADES.

TABLE 24.—*Marks and grades.*[1]

AVERAGE MARK, GRADE, AGE, AND NUMBER OF CASES—HORACE MANN SCHOOL BOYS.

FOR CHART IIc.

No. of curve.	Age in years and months.	Age in years. 6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		General average.	Total cases.
		Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.		
1	9- 1							88^{3}	32																							88	32
2	11- $2\frac{1}{2}$											82^{5}	38																			82	38
3	8- 9							83^{3}	16	81^{4}	24	83^{5}	44	90^{6}	40	84^{7}	47	88^{8}	24													85	195
4	13-11																	84^{8}	20	74^{9}	15	79^{10}	20	69^{11}	18	72^{12}	19					76	92
5	12- 0													89^{6}	40	82^{7}	44	82^{8}	14	86^{9}	10	80^{10}	14	80^{11}	16	79^{12}	20					83	158
6	10-10									87^{5}	48	88^{6}	40	84^{7}	48	76^{8}	20	80^{9}	20	77^{10}	24	73^{11}	21	81^{12}	18							81	239
7	8- 0							73^{4}	36	78^{5}	40	80^{6}	40	76^{7}	43																	78	175
8																																	
9																																	
10	12- 0													83^{4}	41	83^{5}	44	85^{6}	47	81^{7}	48	78^{8}	20	74^{9}	20	75^{10}	16	77^{11}	20			80	256
11	8-11							87^{3}	28	84^{4}	12	82^{4}	34	83^{5}	44	89^{6}	43	87^{7}	43	85^{8}	9											85	213
12	8- 8							93^{3}	40	82^{5}	39	89^{6}	44	82^{7}	43																	87	166
13	10-11									81^{3}	33	86^{5}	43	87^{6}	48	85^{7}	48	85^{7}	48	79^{8}	20	80^{9}	26	76^{10}	24	77^{11}	28					81	270
14	9- 6							90^{3}	39	85^{4}	36	88^{5}	45	89^{6}	39	81^{7}	48	83^{8}	28	80^{9}	28	83^{10}	28									85	291
15	11- 8											89^{6}	40	91^{6}	39	87^{8}	30	78^{9}	23	64^{10}	20	85^{11}	22	67^{12}	21	78^{12}	18					80	213

FOR CHART IIIc.

1	8- 6							78^{3}	16	71^{4}	33	83^{5}	44	88^{6}	47	84^{7}	44	86^{8}	23													82	210
2	8-11							85^{3}	39	79^{4}	33	78^{5}	48	81^{6}	39	79^{7}	42	76^{8}	24													80	225
3	11- 7													88^{6}	43	87^{7}	46	83^{8}	9	77^{9}	20	64^{10}	20									80	138
4	9- 7									85^{3}	28	83^{4}	33	83^{5}	44	88^{6}	48	85^{7}	44	84^{8}	29	84^{9}	26									85	262
5	10- 0									80^{4}	41	86^{4}	43	84^{5}	35	88^{7}	47	78^{8}	20	76^{9}	17											82	203
6	11- 4											83^{4}	45	83^{5}	44	85^{6}	48	74^{7}	43													82	180
7	9- 9									91^{4}	31	92^{5}	40	92^{7}	44	92^{8}	20	89^{9}	16	87^{10}	25	83^{11}	27	83^{12}	28							89	231
8	9- 8									87^{3}	43	80^{4}	38	87^{5}	48	84^{6}	44	70^{7}	47	65^{8}	23	62^{9}	17	64^{10}	20	73^{11}	6					75	286
9	11- 6											87^{5}	48	91^{6}	42	85^{7}	47	89^{8}	15	85^{9}	18	82^{10}	24	84^{11}	19	78^{12}	20					85	223
10	11-10													84^{5}	44	83^{6}	41	82^{8}	48	83^{7}	47	79^{9}	16	81^{10}	20	76^{11}	20	74^{11}	20			78	256
11	8- 9							80^{3}	30	81^{4}	36	78^{5}	33	84^{6}	48	80^{7}	48	72^{8}	18													79	222
12	8- 5							85^{3}	17	84^{4}	44	82^{5}	44	82^{6}	48	79^{7}	40	74^{8}	23	69^{9}	24											78	249

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13	8– 6												81[3]	40	81[2]	40	79[4]	41	69[2]	44	70[6]	44	70[4]	41	69[8]	44	70[6]	44							76	209
14	11– 6												81[3]	40	81[2]	40			83[6]	44			84[6]	39	82[7]	43	81[6]	19	78[9]	19	73[10]	20	73[11]	20	78[12]	18	79	222
15	9–11														82[8]	32	81[4]	42	83[5]	44	87[6]	48	84[7]	48	76[8]	20											82	234

AVERAGE MARK, GRADE, AGE, AND NUMBER OF CASES—HORACE MANN SCHOOL GIRLS.

FOR CHART IVc.

No. of curve.	Age in years and months.	Age in years.																						General average.	Total cases.
		9		10		11		12		13		14		15		16		17		18		19		20			
		Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.		
1	9– 0	88[3]	36	89[4]	36	87[5]	44	85[6]	40	84[7]	48	79[8]	16	81[9]	20	76[10]	20	82[11]	21	85[12]	20					84	301
2	12– 3							83[3]	24	84[9]	24	82[10]	28	81[11]	28	85[12]	30									83	134
3	10– 0			88[4]	36			82[5]	44	88[7]	48	87[8]	24	80[9]	23											85	175
4	8–11	94[3]	16	91[4]	42			93[6]	47	91[7]	48	91[8]	20													92	173
5	8–10	95[3]	16	93[4]	28	92[5]	44	94[6]	43	93[7]	43	90[8]	16													93	190
6	9– 9			89[3]	40	91[4]	40	83[5]	47	91[6]	47	90[7]	48	79[8]	20	79[9]	22	80[10]	20							85	284
7	10– 8					78[5]	48	77[5]	47			74[7]	44			81[8]	21	72[9]	22							76	182
8	10–11					92[4]	37	88[5]	44	92[6]	43	86[7]	48	85[8]	24	75[9]	20	82[10]	24	79[11]	22	75[12]	24			84	286
9	8– 7	94[3]	34	94[4]	38	96[5]	43	95[6]	48	94[7]	48	94[8]	18	94[10]	20	95[11]	22									95	271
10	9–10			94[4]	44	88[5]	44	91[6]	36	91[7]	40	84[8]	20	87[9]	20	83[10]	24	79[11]	23	79[12]	22					86	273
11	10– 1			86[4]	41	84[5]	47	85[6]	48	90[6]	47	90[7]	48	85[8]	20	82[9]	22	81[10]	19							85	292

FOR CHART Vc.

1	8– 9	84[3]	38	78[4]	18	83[5]	48	84[6]	44	82[7]	47	88[8]	24	88[9]	30											84	249
2	10– 0			83[5]	44	84[6]	48	80[7]	41	75[8]	18	77[9]	20	79[10]	20											80	191
3	9–10			90[5]	36	87[4]	39	89[6]	44	91[6]	48	94[7]	48	95[8]	24	92[9]	24	90[10]	26	92[11]	28	92[12]	24			91	341
4	13– 4									83[9]	27	85[9]	19	78[10]	25	74[11]	20	74[12]	20							79	111
5	10– 1			92[4]	42	94[5]	40																			93	82
6	11– 3					73[4]	29																			73	29
7	8– 6	94[3]	46	76[4]	40	79[6]	40	82[6]	44	78[7]	48															82	218
8	12– 4							89[6]	47	89[7]	45	84[8]	20	83[9]	20	82[10]	24	80[11]	22	78[12]	24					84	202
9	9– 6			89[5]	38	86[4]	33	80[5]	48	88[6]	46			78[8]	20	77[9]	23									83	208
10	8–10	91[3]	32	90[4]	43	91[5]	46	89[6]	45	83[7]	48	82[8]	23	85[9]	22	86[10]	19									86	278
11	13– 0									89[8]	44	82[9]	28	80[10]	18	78[11]	28	75[12]	19							81	137
12	8–11	92[8]	44	91[4]	47	86[5]	48	88[6]	45																	89	184

[1] The table for Chart Ic may be found on page 74.

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TABLE 24.—*Marks and grades*—Continued.

AVERAGE MARK, GRADE, AGE, AND NUMBER OF CASES—HORACE MANN SCHOOL GIRLS—Continued.

FOR CHART VIc.

No. of curve.	Age in years and months.	Age in years.																						General average.	Total cases.
		9		10		11		12		13		14		15		16		17		18		19		20			
		Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.		
1																									
2	14- 0											95^{8}	36	88^{9}	28	91^{10}	20	86^{11}	25	89^{12}	20	92^{12}	20	90	149
3	9- 0	94^{2}	38	91^{4}	33	86^{5}	44	91^{6}	47	88^{7}	29	91^{8}	21	89^{9}	26									90	238
4	9- 5	93^{2}	38	92^{4}	36	91^{6}	44	86^{7}	44	88^{9}	24	85^{9}	23	83^{10}	24	83^{11}	28	82^{12}	24					85	285
5	12- 1							91^{5}	47	91^{6}	40	86^{8}	20	81^{9}	20	76^{10}	25	84^{11}	16	81^{12}	19			84	187
6	8- 7	93^{2}	33	96^{4}	38	96^{5}	44	96^{6}	48	97^{7}	48	93^{8}	20	96^{10}	24	96^{11}	24							95	279
7	11- 4					82^{4}	38	84^{5}	44	88^{6}	45	86^{7}	42	75^{8}	16	78^{9}	20							82	203
8	8-10	88^{2}	38	89^{4}	36	86^{5}	44	87^{6}	40	87^{7}	48	88^{8}	20	78^{9}	20	78^{10}	24	79^{11}	15	82^{12}	22			84	307
9	10-10					94^{4}	32	89^{6}	43	94^{7}	44	92^{8}	24	88^{9}	24	90^{10}	28	88^{11}	32	87^{12}	24			90	241
10	9- 8			79^{8}	32	84^{4}	37	82^{6}	47	89^{6}	48	82^{7}	48											83	212
11	9- 5	89^{2}	16	70^{4}	36	81^{5}	44	89^{6}	48	93^{7}	42	82^{9}	20											84	206
12	9- 1	82^{2}	8	72^{4}	40	80^{5}	44	87^{6}	43	83^{7}	43													81	178
13	16- 5															85^{10}	16	83^{11}	16	80^{12}	20			83	52

FOR CHART VIIc.

1	12- 0							88^{6}	44	91^{7}	48	86^{8}	20	83^{9}	15	86^{10}	20	86^{11}	20	85^{12}	20					86	187
2	11- 6							93^{5}	44	90^{6}	40	92^{7}	48	88^{8}	16	85^{9}	20	90^{10}	20							90	188
3	10- 6					86^{5}	48	93^{6}	40	92^{7}	48	92^{8}	24	93^{9}	16	91^{10}	22	95^{11}	20	95^{12}	22					92	240
4	11- 8							92^{6}	40	91^{6}	33	84^{9}	44	89^{6}	48	85^{7}	44	77^{8}	22	82^{9}	20					86	251
5	11- 1					83^{5}	38	84^{6}	34	83^{5}	47	82^{6}	48	79^{7}	48	75^{8}	20	78^{9}	20	68^{10}	18					80	273
6	9- 6			91^{3}	36	89^{4}	34	88^{5}	47	91^{6}	36	92^{7}	47	90^{8}	24	83^{9}	26	77^{10}	24	74^{11}	24					86	298
7	11- 3					83^{4}	36	88^{5}	44	92^{6}	40	91^{7}	48	80^{8}	20	85^{9}	19	87^{10}	22	81^{11}	20	83^{12}	24			86	273
8	10-10					94^{3}	38	91^{4}	36	85^{6}	44	87^{7}	47													89	165
9	9- 6			89^{3}	38	89^{4}	36	89^{6}	44	92^{6}	40	84^{7}	48	80^{8}	20	80^{9}	20	81^{10}	21	83^{11}	19	81^{12}	16			85	302
10	10- 6					84^{4}	23	79^{5}	47	88^{6}	47	82^{7}	47	77^{8}	20	76^{9}	22	76^{10}	21	73^{11}	21					79	251
11	10-11					92^{3}	40	80^{4}	33	87^{5}	39	80^{6}	44	80^{7}	47	88^{8}	20	83^{9}	16	80^{10}	24	78^{11}	24	70^{12}	20	85	307

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Average Mark, Grade, Age, and Number of Cases—Francis W. Parker School Boys.

FOR CHART VIIIc.

No. of curve.	Age in years and months.	Age in years. 7		8		9		10		11		12		13		14		15		16		17		18		19		General average.	Total cases.
		Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.		
1	6- 7	73^{1}	8	73^{2}	8	73^{3}	8	73^{4}	8	79^{5}	8	79^{6}	8	79^{7}	8	79^{8}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	76	64
2	8- 8	.....	.....	.....	.....	79^{4}	8	79^{5}	8	80^{6}	8	80^{7}	8	80^{8}	8	79^{9}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80	48
3	6-11	86^{1}	7	86^{2}	7	86^{3}	8	86^{4}	8	86^{5}	8	86^{6}	8	86^{7}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	86	54
4	12-0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	71^{6}	8	71^{7}	8	71^{8}	8	72^{9}	9	72^{10}	9	72^{11}	9	72^{12}	9	.....	.....	72	60
5	6-10	85^{1}	7	85^{2}	7	85^{3}	7	85^{4}	7	86^{5}	8	86^{6}	8	86^{7}	8	86^{8}	8	88^{9}	8	.....	.....	.....	.....	.....	.....	.....	.....	86	68
6	9-10	.....	.....	.....	.....	.....	.....	58^{2}	6	61^{3}	8	61^{4}	8	61^{5}	8	78^{6}	8	78^{7}	8	78^{8}	8	78^{9}	6	78^{10}	8	.....	.....	70	68
7	7-11	.....	.....	75^{1}	7	75^{2}	7	75^{3}	8	76^{4}	8	78^{5}	8	78^{6}	8	78^{7}	8	78^{8}	8	78^{9}	8	.....	.....	.....	.....	.....	.....	77	70
8	12- 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	79^{6}	8	79^{7}	8	79^{8}	8	80^{9}	8	80^{10}	8	80^{11}	8	80^{12}	8	.....	.....	80	56
9	11- 0	.....	.....	.....	.....	.....	.....	.....	.....	83^{5}	8	83^{6}	8	83^{7}	8	83^{8}	8	85^{9}	9	85^{10}	9	85^{11}	9	85^{12}	9	.....	.....	84	68
10	11- 3	.....	.....	.....	.....	.....	.....	.....	.....	67^{2}	8	67^{3}	8	67^{4}	8	67^{5}	8	67^{6}	8	67^{7}	8	67^{8}	8	67^{9}	8	.....	.....	67	64
11	12- 5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	76^{6}	8	76^{7}	8	76^{8}	8	76^{9}	8	76^{10}	8	76^{11}	8	.....	.....	.....	.....	76	48
12	7- 0	59^{1}	8	59^{2}	8	59^{3}	8	59^{4}	8	59^{5}	8	59^{6}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	59	48

FOR CHART IXc.

1	6- 7	80^{1}	8	80^{2}	8	80^{3}	8	80^{4}	8	81^{5}	8	81^{6}	8	81^{7}	8	81^{8}	8	80^{9}	8	.....	.....	.....	.....	.....	.....	.....	.....	80	72
2	6- 6	61^{2}	7	61^{3}	7	66^{4}	7	66^{5}	7	66^{6}	7	66^{7}	7	66^{8}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	65	50
3	12-11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85^{7}	8	86^{8}	8	85^{9}	9	85^{10}	9	85^{11}	9	85^{12}	9	.....	.....	85	52
4	10- 8	.....	.....	.....	.....	.....	.....	.....	.....	89^{6}	8	89^{7}	8	89^{8}	8	91^{9}	9	91^{10}	9	91^{11}	9	91^{12}	9	.....	.....	.....	.....	90	60
5	12- 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	79^{6}	9	79^{7}	9	79^{8}	9	81^{9}	9	81^{10}	9	81^{11}	9	.....	.....	.....	.....	80	54
6	8- 0	.....	.....	83^{1}	8	83^{4}	8	83^{5}	8	83^{6}	8	83^{7}	8	84^{8}	8	83^{9}	9	83^{10}	9	.....	.....	.....	.....	.....	.....	.....	.....	83	66
7	11- 2	.....	.....	.....	.....	.....	.....	.....	.....	84^{5}	8	84^{6}	8	85^{7}	8	85^{8}	8	86^{9}	9	86^{10}	9	86^{11}	9	86^{12}	9	.....	.....	85	68
8	7- 0	66^{1}	8	66^{2}	8	66^{3}	8	66^{4}	8	68^{5}	8	68^{6}	8	68^{7}	8	68^{8}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67	64
9	11- 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	79^{6}	8	79^{7}	8	79^{8}	8	80^{9}	8	79^{10}	9	79^{11}	9	79^{12}	9	.....	.....	79	68
10	10-10	.....	.....	.....	.....	.....	.....	.....	.....	66^{4}	6	66^{5}	6	66^{6}	6	66^{7}	6	66^{8}	6	66^{9}	6	.....	.....	.....	.....	.....	.....	66	36
11	10- 1	.....	.....	.....	.....	.....	.....	81^{4}	8	81^{5}	8	83^{6}	8	84^{7}	8	83^{8}	8	84^{9}	9	84^{10}	9	84^{11}	9	84^{12}	9	.....	.....	83	76
12	6- 9½	79^{1}	8	79^{2}	8	79^{3}	8	79^{4}	8	81^{5}	8	81^{6}	8	81^{7}	8	81^{8}	8	79^{9}	7	.....	.....	.....	.....	.....	.....	.....	.....	80	71
13	10- 0	.....	.....	.....	.....	.....	.....	80^{3}	8	80^{4}	8	81^{5}	8	81^{6}	8	81^{7}	8	83^{8}	8	82^{9}	9	82^{10}	9	82^{11}	9	82^{12}	9	81	84
14	7- 7	.....	.....	68^{1}	8	68^{2}	8	68^{3}	8	68^{4}	8	68^{5}	8	68^{6}	8	68^{7}	8	68^{8}	8	.....	.....	.....	.....	.....	.....	.....	.....	68	64

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TABLE 24.—*Marks and grades*—Continued.

AVERAGE MARK, GRADE, AGE, AND NUMBER OF CASES—FRANCIS W. PARKER SCHOOL GIRLS.

FOR CHART Xc.

No. of curve.	Age in years and months.	Age in years. 7		8		9		10		11		12		13		14		15		16		17		18		19		General average.	Total cases.
		Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.	Average mark.	Cases.		
1	7- 7	.....	.....	88^{1}	8	88^{2}	8	88^{3}	8	88^{4}	8	88^{5}	8	88^{6}	8	88^{7}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	88	56
2	10-10	.....	.....	.....	.....	.....	.....	.....	.....	79^{6}	8	79^{8}	8	79^{7}	8	79^{8}	8	76^{9}	9	76^{10}	9	81^{11}	9	81^{12}	9	.....	.....	79	68
3	7-11	.....	.....	84^{2}	8	84^{2}	8	84^{4}	8	84^{5}	8	84^{6}	8	84^{7}	8	84^{8}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	84	56
4	10- 8	.....	.....	.....	.....	.....	.....	.....	.....	83^{4}	8	83^{5}	8	83^{6}	8	84^{7}	8	84^{8}	8	84^{9}	9	84^{10}	9	.....	.....	.....	.....	84	58
5	14- 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85^{8}	8	85^{9}	9	91^{10}	9	92^{11}	9	93^{12}	9	.....	.....	89	44
6	9- 8	.....	.....	.....	.....	.....	.....	82^{4}	7	82^{6}	7	82^{8}	7	82^{7}	7	82^{8}	7	82^{9}	7	82^{10}	7	83^{11}	8	.....	.....	.....	.....	82	57
6a	11- 2	.....	.....	.....	.....	.....	.....	.....	.....	73^{6}	5	73^{6}	5	73^{7}	5	73^{8}	5	75^{9}	6	75^{10}	6	75^{11}	6	75^{12}	9	.....	.....	74	47
7	6- 8	81^{1}	7	81^{2}	7	80^{3}	8	80^{4}	8	80^{5}	8	80^{6}	8	80^{7}	8	80^{8}	8	79^{9}	8	79^{10}	9	.....	.....	.....	.....	.....	.....	80	80
8	6- 7	85^{1}	8	85^{2}	8	85^{3}	8	88^{4}	8	88^{5}	8	88^{6}	8	88^{7}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	87	56
9	8- 7	.....	.....	.....	.....	85^{2}	8	85^{3}	8	85^{4}	8	85^{5}	8	94^{6}	8	94^{7}	8	94^{8}	8	93^{9}	9	93^{10}	9	.....	.....	.....	.....	89	74
10	10- 5	.....	.....	.....	.....	.....	.....	81^{4}	8	81^{5}	8	81^{6}	8	81^{7}	8	81^{8}	8	81^{9}	9	81^{10}	9	81^{11}	9	81^{12}	9	.....	.....	81	76
11	7- 0	85^{1}	8	85^{2}	8	85^{3}	8	85^{4}	8	86^{5}	8	86^{6}	8	85^{7}	8	85^{8}	8	84^{9}	8	.....	.....	.....	.....	.....	.....	.....	.....	85	72
12	11- 8	.....	.....	.....	.....	.....	.....	.....	.....	73^{5}	8	73^{6}	8	73^{6}	8	73^{7}	8	73^{8}	8	73^{9}	8	73^{10}	8	73^{11}	8	73^{12}	8	73	64

FOR CHART XIc.

1	6- 9	85^{1}	8	85^{1}	8	85^{3}	8	85^{4}	8	85^{5}	8	85^{6}	8	85^{7}	8	79^{8}	8	77^{9}	9	83^{10}	9	.....	.....	.....	.....	.....	.....	83	82
2	10- 8	.....	.....	.....	.....	.....	.....	.....	.....	66^{4}	8	66^{5}	8	66^{6}	8	66^{7}	8	79^{8}	8	79^{9}	8	79^{10}	8	79^{11}	8	79^{12}	8	73	72
3	8- 7	.....	.....	81^{3}	8	81^{4}	8	81^{5}	8	80^{6}	8	75^{7}	8	76^{8}	8	81^{9}	9	71^{10}	9	.....	.....	.....	.....	.....	.....	.....	.....	78	66
4	8- 3	.....	.....	85^{3}	8	85^{4}	8	85^{5}	8	86^{6}	8	88^{7}	8	90^{8}	8	91^{9}	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	87	56
5	10- 9	.....	.....	.....	.....	.....	.....	.....	.....	78^{4}	8	78^{5}	8	78^{6}	8	78^{7}	8	78^{8}	8	78^{9}	8	78^{10}	8	78^{11}	8	78^{12}	8	78	72
6	10- 5	.....	.....	.....	.....	.....	.....	84^{3}	8	84^{6}	8	84^{7}	8	84^{8}	8	84^{9}	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	84	39
7	11- 1	.....	.....	.....	.....	.....	.....	.....	.....	76^{4}	8	76^{5}	8	76^{6}	8	76^{7}	8	76^{8}	8	76^{9}	9	76^{10}	9	77^{11}	9	77^{12}	9	76	76
8	10- 1	.....	.....	.....	.....	.....	.....	86^{3}	8	86^{6}	8	86^{7}	8	86^{8}	8	86^{9}	8	86^{10}	8	86^{11}	8	.....	.....	.....	.....	.....	.....	86	56
9	9-10	.....	.....	.....	.....	.....	.....	84^{3}	9	84^{6}	9	84^{7}	9	84^{8}	9	84^{9}	10	84^{10}	10	84^{11}	10	.....	.....	.....	.....	.....	.....	84	66

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(E) INDIVIDUAL NOTES ON SCHOOL PROGRESS.[1]

Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart IIc.

1. Still in school.
2. Have marks for one year only.
3. Took part work during third grade; absent second term of fourth because of whooping cough; still in school.
4. Left at beginning of eleventh grade.
5. Part work in eighth grade; absent fourth term of eighth, first and second terms of ninth; graduated.
6. Regular work; conditioned in French during eighth grade; in Latin during eleventh; graduated.
7. Part work in third grade; withdrew at end of seventh.
8. In third grade.
9. In third grade.
10. Regular work; conditioned in French during seventh grade; in Latin during eighth; in English, Latin, and history during ninth; in German during eleventh; still in school.
11. Ill during fourth term of third grade; repeated grade following year; absent during second and third terms of eighth; still in school.
12. In school; skipped fourth grade.
13. Conditioned in French during eighth grade; in Latin during ninth, tenth, and eleventh.
14. Left school at beginning of fourth grade.
15. Skipped seventh grade; conditioned in Latin during eighth; in Latin and algebra during eleventh; graduated.

Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart IIIc.

1. Part work in third grade; still in school.
2. Conditioned in arithmetic during third grade; in history, geography, German during seventh; in Latin and algebra during eighth; withdrew.
3. Absent during second, third, and fourth terms of eighth grade; conditioned in Latin during ninth; not promoted; withdrew.
4. Conditioned in Latin during ninth grade; in school.
5. Absent during fourth term of fifth grade; conditioned in English and French during eighth; part work in ninth; withdrew.
6. Normal work.
7. Normal work; graduated.
8. Conditioned in English and biology during eighth grade; in Latin and history during ninth; in Latin and algebra during tenth; withdrew.
9. Out of school during fourth term of eighth grade and third term of ninth.
10. Failed to be promoted at end of fifth grade; in school.
11. Absent fourth term of fifth grade; conditioned in arithmetic during sixth; in English and algebra during eighth; withdrew.
12. Poor work in lower grades but improved; conditioned in history during ninth grade; in English, Latin, algebra, geometry, physics during tenth; withdrew.
13. Repeated third grade; conditioned in English and history during fifth.
14. Withdrew from school for one year between fifth and sixth grades; conditioned in algebra during ninth; in geometry during tenth; chemistry during eleventh; graduated.
15. Promoted conditionally from fourth grade; conditioned in French during seventh grade; in algebra during eighth; withdrew.

[1] The notes for Chart Ic may be found on page 76.

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Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart IVc.

1. Conditioned during tenth grade; graduated.
2. Graduated.
3. Conditioned in algebra during ninth grade.
4. Part work in third grade; skipped fifth; in school.
5. Part work in third grade; absent third term of fourth, whooping cough; in school.
6. Conditioned in algebra during eighth grade; in history during tenth; in school.
7. No record for sixth grade; conditioned in history and arithmetic during seventh; in Latin and history during ninth; in school.
8. Conditioned in algebra during ninth grade.
9. In school.
10. Conditioned in history and geometry during eleventh grade, on account of absence; graduated.
11. In sixth grade two years with good records; frequently absent in eighth; in school.

Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart Vc.

1. Withdrew at end of second term of fourth grade; returned in fifth; in school.
2. Normal work.
3. Large number of subjects and high grades.
4. Conditioned in Latin during eleventh grade; graduated.
5. Two years' records; in school.
6. One year's records; absent during fourth term; withdrew.
7. Normal work.
8. Normal work; graduated.
9. No record for eighth grade; conditioned in algebra during tenth.
10. Normal work; in school.
11. Conditioned in Latin and history during eighth grade; in Latin and Greek during ninth; graduated.
12. Normal work; left school.

Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart VIc.

1. Record not available.
2. Normal work; graduated.
3. Normal work; in school.
4. Conditioned in biology during eighth grade; graduated.
5. Conditioned in Latin during ninth grade; graduated.
6. Excellent record; in school.
7. Conditioned in Latin during ninth grade; in school.
8. Conditioned in Latin, history, German, during ninth grade; in algebra during tenth; graduated.
9. Normal work; graduated.
10. In school.
11. Part work in third grade; conditioned in arithmetic during fourth; in school.
12. Part work in third grade; withdrew end of second term, returned in fall; in school.
13. Normal work; graduated.

Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart VIIc.

1. Normal work; graduated.
2. No record after tenth grade.
3. Normal work; graduated.

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4. Conditioned in French during seventh and eighth grades.
5. Conditioned in geography and German during seventh grade; in Latin during eighth; in French during ninth; in Latin, history, geometry during tenth.
6. Conditioned in algebra during ninth grade; in Latin during eleventh; in school.
7. Normal work; graduated.
8. Normal work; graduated.
9. Normal work; graduated.
10. Lazy; in school.
11. Conditioned in Latin during eleventh grade; graduated.

Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart VIIIc.

1. Poor in French from third grade.
2. Entered fourth grade.
3. Entered kindergarten.
4. Entered sixth grade; conditioned annually in spelling; graduated.
5. Entered first grade; normal work.
6. Entered second grade; poor in German after fourth; poor in spelling.
7. Entered kindergarten; poor in spelling throughout course.
8. Entered sixth grade; normal work; graduated.
9. Entered fifth grade; normal work; graduated.
10. Poor in spelling and mathematics throughout course.
11. Entered sixth grade; normal work.
12. Entered kindergarten; poor in English, German, reading, spelling.

Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart IXc.

1. Normal work.
2. Entered second grade; poor in English and spelling.
3. Entered seventh grade; normal work.
4. Entered sixth grade; graduated; normal work.
5. Entered sixth grade; normal work.
6. Entered third grade; normal work; graduated.
7. Entered fifth grade; normal work; graduated.
8. Entered kindergarten; poor in spelling and reading.
9. Entered fifth grade; normal work; graduated.
10. Entered fourth grade; poor in English.
11. Entered fourth grade; normal work; graduated.
12. Entered first grade; normal work.
13. Entered third grade; normal work.
14. Entered first grade; poor in spelling and mathematics.

Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart Xc.

1. Normal work.
2. Entered fifth grade; normal work; graduated.
3. Entered second grade; normal work.
4. Entered fourth grade; normal work.
5. Normal work; graduated.
6. Normal work.
7. Entered first grade; normal work.
8. Entered first grade; normal work.
9. Entered second grade; normal work.
10. Normal work; graduated.
11. Entered kindergarten; normal work.
12. Poor in spelling.

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Notes on the school standing of individuals whose marks and grades appear in Table 24 and Chart XIc.

1. Normal work.
2. Normal work.
3. Normal work; withdrew at tenth grade.
4. Normal work.
5. Normal work; graduated.
6. Normal work.
7. Normal work; graduated.
8. Normal work; withdrawn at end of eleventh grade.
9. Normal work; withdrawn at end of eleventh grade.

Notes on the school standing of individuals whose marks and grades appear in Table 24.

1. Conditioned in spelling and handwork regularly.
2. Normal work; withdrawn at end of eleventh grade.
3. Poor in French and spelling; in school.
4. Entered kindergarten; died in seventh grade.
5. Entered kindergarten; normal work; withdrew at end of sixth grade.
6. Poor health, poor work; in school.
7. Entered first grade; normal work.
8. Entered kindergarten; poor in spelling and mathematics.
10. Entered second grade; normal work; graduated.

IV. HISTORICAL SUMMARY.

(A) THE RISE OF PHYSICAL MEASUREMENTS.

Scientific anthropometry arose in the main from the artists' desire to find the best proportions for the beautiful forms which they wished to represent. For example, Phidias, it has been said, used 20 models in order that he might assemble the most beautiful parts of each into one figure. As early as 1770 Sir Joshua Reynolds called attention, in an address delivered before the Royal Academy of Fine Arts, to the differences in the measurements of the human form from childhood to adult life. But it was to M. Quetelet, who coined the word anthropometry, that credit should be given for the first scientific study of physical growth, since his work was pursued from the standpoints of art and the scientific method of empirical measurements and induction in 1836. Quetelet's data were meager, and he failed to discover what has since been verified by all investigators, that girls are taller and heavier than boys during the early adolescent period.

The vast amount of work that has been done in the field of experimental measurements and physical tests consists largely of tabulated and descriptive reports in a wide range of disconnected fields of endeavor. Much of the work is only suggestive and will have to be done again under standardized conditions in order to determine definite correlations. One of the most varying factors is that of

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age, since many investigators use the last birthday, others the nearest birthday, some the next birthday, others the age between the past and future birthdays, and still others try to calculate exact birthdays. In not a single case, as far as I have been able to determine, have the measurements been taken on the birthday except by chance. Many investigators measure the children with their clothing on, and no calculations are accurate which aim to give the height of the shoe heel or the weight of the clothes. Again, many of the measurements are made, in a number of investigations, by amateurs; it is very difficult to get the measurements of trained anthropometrists to agree.

In spite of the heterogeneous material on hundreds of thousands of children which has been collected, much valuable and painstaking work has been done which will be of direct scientific significance and of direct assistance to the physical director, the physician, the hygienist, anthropologist, educational psychologist, and educator. It is hoped that this monograph will not only make a distinctly new contribution to the important field of scientific and experimental education, but that it will assist in making more accessible the work previously done.

The first important investigation on the physical measurements of adolescent boys that I have been able to find was published in 1854 by Zeissing in his study of Belgian children. Following this, in 1860, Cromwell studied the growth of Manchester school children for the ages from 8 to 18, and discovered the general law which has been verified by every authority since that date with the exception of Quetelet for normal children and Goddard for feeble-minded children, i. e., *girls are taller and heavier than boys from the approximate ages of 11 to 14.* The boys then become taller and heavier and continue their growth longer.

The measurements of adolescent boys were published by G. C. Steet in 1874, in the form of a distribution table giving the relation of weight to height, which, so far as I can ascertain, is the first use of the *weight-height index* as an expression of the robustness of an individual. The first report was soon supplemented and improved by Roberts in 1876 and Bowditch in 1877. The following year, 1878, Roberts published his "Anthropometry," which gives in index columns, age columns, and result columns conclusions based on 27,640 males between the ages of 4 and 50 years from the records of Dr. Bowditch, of Boston, Mass., and later gives a table showing the comparative measurements of 59,077 males, including 11 classes of individuals. In 1883 the final report of the anthropometric committee, of which Francis Galton was chairman, was drawn up and submitted by Roberts and Sir R. W. Rawson. In England the study of growth has been mainly by men who were interested in the general laws of

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anthropology, while in America the work was originally pursued for its educational value and more recently for its correlation in psychological studies.

Following Quetelet's study of the individuals for each age from birth to 21 years, Bowditch made in 1875 his extensive investigation on over 24,000 Boston school children; during the same year the Provost General of the United States published the statistics of the American armies comprising 190,621 male whites ranging from 16 to 42 years of age. In 1878 Roberts began to publish his tables on over 30,000 individuals of all classes in England, which were followed by the Report of the Anthropometric Committee on Schools, Military and Naval Colleges, based on 29,405 males and females. The following year Peckham began his investigations in America and Hertel in Denmark. The subsequent investigations of the more general type were Key's, in Sweden in 1889, where 18,000 children were measured; Geisslers's, in Germany, where the records from 21,173 children were used; and Porter's, in America, in 1893, where 21,173 children were studied in relation to physical growth and mental development. Since this date more detailed work has been done with special ages, nationalities, sexes, and classes.

Roberts began the work of differentiating the classes and found the children of the favored classes were taller and heavier than those of the artisan classes; this view has been substantiated by practically all other authorities who have made such distinctions in the data. In addition to the numerous special groups of children measured, the most valuable individual study is that of Wiener's four sons from birth to 20 years of age. Among the other individual studies are Camerer's, Peckham's, King's, Landsberger's, and Wissler's which is especially valuable.

The first study dealing with feeble-minded children as a class was made by Roberts in 1878 on about 130 children. The second significant report was made by Tarbell in 1881; a third by Shuttleworth in 1884 on 1,209 children, followed by Wylie's in 1889 and 1903 on about 400 children. Goddard's investigation covering over 10,000 cases is the most painstaking and valuable in this field.

(B) SOME GENERAL CONCLUSIONS.

1. HEIGHT.

Periods of growth.—First-born children exceed later-born children in height (Boas). Short children continue longer to grow than tall children (Boas).

The most rapid growth occurs during the first year, and the rate is approximately the same for boys and girls (Burk).

The period of accelerated growth appears just before puberty and the most rapid adolescent growth is from 14 to 15 (Hall).

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Large children have the period of accelerated growth in height earlier than short children (Bowditch). This conclusion is not upheld by Boas.

The comparative rate of growth in height of dull, mediocre, and precocious children of the same sex is the same at all ages from 7 to 16, inclusive (Porter).

There is a close correlation between height and pubertal maturation, as shown by pubescence (Crampton, Weissenberg, Foster).

Manner of growth.—Growth in height is rhythmic, alternating periods of growth with periods of inactivity (Hall, Burk).

The body does not grow relatively larger but by parts (Vierordt).

The body normally increases from birth to maturity 3 times in height (Hall).

Children have each year a maximal, a middle, and a minimal period of growth; in the maximal period the daily growth is 2½ times as much as in the middle period, while the middle period is 2 times as great as the minimum (Malling-Hansen).

The fluctuations in the growth of a youth, a boy, and an infant are relatively the same (Camerer).

Physical and mental development.—Dull children are shorter than precocious children of the same age or average children (Porter, Christopher).

Early pubescence favors good scholarship; late pubescence, poor scholarship (Crampton).

There is no correlation between academic examinations in college and physical measurements (Galton).

Successful pupils are taller than unsuccessful, and the rate of growth is quicker than in the successful (Gratsianoff).

Sex.—Boys are taller than girls at all ages except the period from about 11 to 14, when girls excel in both height and weight (Smedley).

Growth is more variable with girls than with boys (Boas).

The relation of weight and height in growing children is such that at heights below 58 inches boys are heavier than girls in proportion to their stature. At heights above 58 inches the reverse is true (Bowditch).

Girls nearly cease to grow at about 17 years of age (Peckham). This view is substantiated by practically all investigators.

Boys cease growing at about 23 years of age (Sargent, Seaver). There is occasionally a decrease in height after 23. Gould found that the total height of men was not attained until the age of 27.

From 15 to 18 sitting height in girls increases only 2 inches, but over 4 inches in boys. At 14 the lower extremities of girls almost cease to grow, while those of boys increase 4 inches between 14 and 19 (MacDonald).

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Heredity.—The fact that we have certain particular men and women for our ancestors determines to a large extent what particular height we shall have (Thorndike).

Environment.—Height is conditioned to some extent by the nutrition of the body, by exercise, by disease, in short, by all agents that influence bodily functions in general (Thorndike, Hrdlicka, Burk).

The height of American-born men is modified by the density of population. Urban life decreases stature from 5 years on (Peckham).

Country boys are taller than city boys (Galton).

There is apparently an influence of climate upon growth in height (Baxter).

Social or environmental conditions may influence the rate of growth at different stages of development (Meumann).

It is possible that the late period of growth is inhibited by improper hygienic conditions more than earlier periods (Hall).

Disease.—Accelerated growth and better resistance of disease go together (Key).

The age of greatest growth, the adolescent period, is the age of greatest vitality and fewest deaths (Hartwell).

There is 5 to 10 per cent less sickness among boys than girls (Schmidt-Monnard).

Arrest of growth frequently precedes disease in childhood and should be considered a danger signal (Boulton).

Classes.—Children of the favored or nonlaboring class are taller than those of the working class or less favored (Bowditch, Roberts, Geissler, Baxter). Boudin does not hold this theory. This difference is especially noticeable in the girls of the two classes (Pagliania).

The pubertal period of superiority of girls in height and sitting height is nearly a year longer in the laboring classes than in the nonlaboring classes, and the children of the latter show more ability in their studies than the former (MacDonald, Roberts).

Children under poor nutritive conditions grow as fast or faster from 6 to 17 years of age, but they are shorter before that time than the well-nourished child, and hence never attain to equal height (Bowditch, Burk).

College students have increased in height during the past 25 years (Sargent).

Nationality.—Children of American-born parents are in this country taller than children of foreign-born parents (Bowditch, Peckham).

Race seems to be more important than social or environmental conditions in determining absolute growth, but the latter conditions may influence the rate of growth at different stages of development (Meumann).

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American children are taller than European children; Americans are taller than Europeans (Dickson).

Children and adults in the different parts of the United States vary in height (Barnes, Baxter, Gould, Dickson).

White children not only have a greater standing height than colored children, but their sitting height is still greater (MacDonald, Greenwood).

Children of Irish parents are taller than those of German parentage; variations are due to stock or race (Peckham).

In intermarriage between the Germans and the Americans the tendency is to take the height of the taller parent (Peckham).

American boys excel in height only during pubescent years; later they are overtaken in height by Swedish, Danish, and Dutch (Hall).

Filipino children show less sex variations in height than Americans (Bobbitt).

Chinese children are shorter than the average European (Bobbitt, Misawa).

Abnormal.—Children with abnormalities are inferior in height to children of normal growth (MacDonald).

Feeble-minded are, as a rule, shorter than the normal child, and the lower the grade the greater the divergence (Goddard).

The decrease in height is marked in defective children after 18 years of age (Goddard).

The average height of the feeble-minded approximates the minimum of the normal (Wylie, Goddard).

Delinquent girls are as tall as the average girl (Tallant).

2. WEIGHT.

Periods of growth.—First-born children exceed later-born children in weight (Boas).

Large children have the period of accelerated growth in weight earlier than short children (Bowditch).

The comparative weight growth of dull, mediocre, and precocious children is the same at all ages from 7 to 16 inclusive (Porter).

There is a close correlation between weight and pubertal maturation as shown by pubescence (Crampton, Weissenberg, Foster).

Manner of growth.—Growth is rhythmic, alternating periods of weight growth with periods of inactivity (Hall, Burk).

The body normally increases from birth to maturity 20 times in weight (Hall).

Children increase in weight by day and decrease by night (Malling-Hansen).

The fluctuations in the growth of a youth, a boy, and an infant are relatively the same (Camerer).

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The physical and mental development.—Dull children are lighter than precocious children (Porter, Christopher).

The acceleration in weight preceding puberty takes place at the same age in dull, mediocre, and precocious children (Porter).

There is no correlation between academic examinations in college and physical measurements (Galton).

Successful pupils are larger than unsuccessful, and the rate of growth is quicker in the successful (Gratsianoff).

Sex.—Boys are heavier than girls at all ages, except the period from about 11 to 14, when girls excel in weight (Smedley).

Boys now are slightly lighter than in 1876 and girls are heavier (Harrington).

Environment.—Weight is conditioned by the nutrition of the body, by exercise, by disease, in short, by all agents that influence bodily functions in general (Thorndike, Hrdlicka, Burk).

Country boys are heavier than city boys (Galton).

Accelerated growth and better resistance of disease go together (Key).

Loss of weight frequently precedes disease in childhood and should be considered a danger signal (Boulton).

Classes.—Children of the favored classes are heavier than children of the working class (Bowditch, Roberts).

Boys of the favored class in America are heavier than the same class in England (Bowditch).

The pubertal period of superiority of girls in weight is nearly a year longer in the laboring class than in the nonlaboring class (MacDonald).

College students have increased in weight in the last 25 years (Sargent).

Agricultural students in college are heavier than those of other classes (Elson).

Nationality.—Children of American-born parents are in this country heavier than children of foreign-born parents (Bowditch, Peckham).

The average American is heavier than the average European (Dickson).

Children and adults vary in weight in different parts of the United States (Barnes, Baxter, Gould, Dickson).

Colored children have a greater weight in proportion than white children (MacDonald, Greenwood).

Filipino children show less sex variation in weight than Americans (Bobbitt).

Chinese children are lighter than the average European (Misawa, Bobbitt).

Europeans increase more in weight than Americans (Dickson).

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Abnormal.—Defectives are heavier at birth than normal children (Wylie, Goddard).

Children with abnormalities are lighter than normal children (MacDonald).

Feeble-minded children are lighter than normal children, and the lower the mental grade the greater the divergence from the normal (Goddard).

Delinquent and truant boys are, as a rule, lighter than boys in the public school (Smedley).

Delinquent girls from a rural reformatory school are as heavy as the average child (Tallant).

3. LUNG CAPACITY.

Growth.—Lungs share to a marked degree in the augmented development of adolescence (Hall).

Lungs continue to grow in weight until old age; in youth they constitute from 1½ to 2 per cent of body weight, in maturity from 2½ to 3½ (Hall).

The maximal capacity is at 19, according to Beyer, while other authorities place it at 35.

The greatest lung capacity occurs in the child naturally after the year of greatest aggregate increase (Hall).

For each centimeter of increase or decrease of stature above or below the mean, there is a corresponding rise or fall of the vital capacity, amounting in men to 60 cubic centimeters, in women to 40 cubic centimeters (Whipple).

Weight increases more than vital capacity, while vital capacity increases more than height (Kottelman, MacDonald).

Physical exercise may increase vital capacity somewhat; tight clothing, disease, and other unfavorable factors will decrease it (Whipple).

Sex.—Girls increase most rapidly in vital capacity from 12 to 14, after which the increment is at a diminished rate, and apparently ceases to increase altogether at 20 (Smedley).

Boys take a sudden start upward at 14, and continue a rapid rise until at least 19½ (Smedley).

Boys have a larger vital capacity than girls at all ages (all investigators).

Mental.—The lung capacity was found to be much greater in children whose standing in school was high and distinctly inferior in a school for laggards (Smedley).

Vital capacity of feeble-minded children is below normal (Goddard), as is also that of retarded children (De Busk).

The most complete and significant table of growth so far published for general purposes is that by Burk, based on Boas's data for height,

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and data from Bowditch, Peckham, and Porter for weight. These tables are as follows:

(C) NORMS.

TABLE 25.—*Average American height mathematically calculated by Dr. Franz Boas from the data of 45,151 boys and 43,298 girls in the cities of Boston, St. Louis, Milwaukee, Worcester, Toronto, and Oakland (Cal.); also absolute and percentage annual increases of same.*

Approximate average age.	Boys.				Girls.			
	Number of observations.	Average for each year.	Absolute annual increase.	Annual increase.	Number of observations.	Average for each year.	Absolute annual increase.	Annual increase.
		Inches.	*Inches.*	*Per cent.*		*Inches.*	*Inches.*	*Per cent.*
5½	1,535	41.7	.....	.....	1,260	41.3	.....	.....
6½	3,975	43.9	2.2	5.3	3,618	43.3	2.0	4.8
7½	5,379	46.0	2.1	4.8	4,913	45.7	2.4	5.5
8½	5,633	48.8	2.8	6.1	5,289	47.7	2.0	4.4
9½	5,531	50.0	1.2	2.5	5,132	49.7	2.0	4.2
10½	5,151	51.9	1.9	3.8	4,827	51.7	2.0	4.0
11½	4,759	53.6	1.7	3.3	4,507	53.8	2.1	4.1
12½	4,205	55.4	1.8	3.4	4,187	56.1	2.3	4.3
13½	3,573	57.5	2.1	3.8	3,411	58.5	2.4	4.3
14½	2,518	60.0	2.5	4.3	2,537	60.4	1.9	3.2
15½	1,481	62.9	2.9	4.8	1,656	61.6	1.2	2.0
16½	753	64.9	2.0	3.2	1,171	62.2	.6	1.0
17½	429	66.5	1.6	2.5	790	62.7	.5	.8
18½	229	67.4	.9	1.4	.....	.....	.....	.....

Average American weight mathematically calculated from the data of about 68,000 children in the cities of Boston, St. Louis, and Milwaukee; also absolute and percentage annual increases of same.

Age.	Boys.			Girls.		
	Average for each age.	Absolute annual increase.	Annual increase.	Average for each age.	Absolute annual increase.	Annual increase.
	Pounds.	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*	*Per cent.*
6½	45.2	.....	.....	43.4	.....	.....
7½	49.5	4.3	9.5	47.7	4.3	9.9
8½	54.5	5.0	10.1	52.5	4.8	10.0
9½	59.6	5.1	9.3	57.4	4.9	9.3
10½	65.4	5.8	9.7	62.9	5.5	9.6
11½	70.7	5.3	8.1	69.5	6.6	10.5
12½	76.9	6.2	8.7	78.7	9.2	13.2
13½	84.8	7.9	10.3	88.7	10.0	12.7
14½	95.2	10.4	12.3	98.3	9.6	11.9
15½	107.4	12.2	12.8	106.7	8.4	8.5
16½	121.0	13.6	12.7	112.3	5.6	5.2
17½	.....	.....	.....	115.4	3.1	2.8
18½	.....	.....	.....	114.9	.....	.....

Table 25 of Boas (see above) shows "the growths in height and weight and the annual absolute and proportional increases for what might be termed the average American boy and girl. The average in Table I (weight) has been calculated by the mathematician M. de Perott upon the following plan: The averages given by Bowditch from 24,500 children of Boston, by Porter from 34,500 children of St. Louis, and by Peckham from 9,600 children of Milwaukee—making nearly 69,000 children all together—have been thrown together, but not averaged directly. At each age the number of

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children has been massed from these three sources and each of the three averages allowed to influence the average of the whole in proportion to the number of children each city contributes. Thus, for example, suppose at the age of 10 years St. Louis contributes 5,000 children, Boston 4,000, and Milwaukee 1,000—altogether there would be 10,000 children of that age—the averages of the three cities would therefore influence the final average in the ratio of 5, 4, and 1, on the same principle we use in partnership."

A significant table bearing on the relation of mental development to growth was compiled and published by Porter. The table for weight is as follows:

TABLE 26.—*Relation of precocity to weight as indicated by distribution of heavy and light children of the same age in the different grades of St. Louis schools (after Porter).*

Age at nearest birthday.	Mean weight (boys, girls).	Grade.									
		Kindergarten.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	High school.
	Lbs.										
6	43.74	43.58	45.29	.....	.....	.....	.....	.....	.....	.....	.....
	41.84	41.65	45.08	.....	.....	.....	.....	.....	.....	.....	.....
7	47.73	45.58	48.48	52.00	.....	.....	.....	.....	.....	.....	.....
	45.84	43.87	46.76	49.88	.....	.....	.....	.....	.....	.....	.....
8	52.58	47.80	51.79	54.43	57.00	.....	.....	.....	.....	.....	.....
	50.35	46.50	49.60	52.10	53.17	.....	.....	.....	.....	.....	.....
9	57.75	.....	55.87	57.64	59.66	61.75	.....	.....	.....	.....	.....
	55.17	.....	52.57	55.44	57.18	60.00	.....	.....	.....	.....	.....
10	62.48	.....	60.19	61.14	64.00	64.91	.....	.....	.....	.....	.....
	60.46	.....	57.00	59.50	61.15	61.64	.....	.....	.....	.....	.....
11	68.47	.....	63.50	65.45	68.12	69.24	71.29	73.34	.....	.....	.....
	65.64	.....	66.34	62.95	65.50	66.77	68.12	.....	.....	.....	.....
12	73.61	.....	70.00	69.50	72.17	73.86	74.69	77.29	76.50	.....	.....
	73.23	.....	71.75	69.80	71.50	72.74	75.13	75.92	78.50	.....	.....
13	79.85	.....	.....	74.25	75.95	78.43	80.90	82.17	83.50	82.00	.....
	83.73	.....	.....	79.50	76.50	81.92	82.78	86.95	87.63	88.50	.....
14	88.08	.....	.....	.....	81.00	84.00	87.83	87.20	93.63	97.50	86.50
	93.94	.....	.....	.....	90.50	87.17	92.67	94.64	96.15	99.00	103.12
15	100.20	.....	.....	.....	.....	89.00	95.33	99.17	105.50	105.17	105.08
	103.20	.....	.....	.....	.....	98.50	100.96	99.83	104.00	104.58	105.15
16	114.17	.....	.....	.....	.....	.....	.....	114.50	104.00	114.00	123.00
	110.06	.....	.....	.....	.....	.....	.....	108.12	107.38	110.29	113.57
17	115.69	.....	.....	.....	.....	.....	.....	.....	.....	111.00	116.00

"The truth which the table expresses is very plain. It declares in unmistakable lines that precocious children are heavier and dull children lighter than the mean child of the same age. It establishes a physical basis of precocity and dullness.

"Whether means or averages are the more trustworthy tools in investigations of this sort is a matter of opinion. So long as their respective value is a subject of controversy investigators will accept no results as final which can be supported only by means. It must therefore be my first concern to show that the law *mean precocity is related to mean physical development* may with equal truth be written *average precocity is related to average physical development.*"

The summaries given in the table following are included primarily for their historical suggestive value.

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TABLE 27.—*Average height of men; 100 recruits from each State (Dickson, 1857).*[1]

	Feet.		Feet.
New York	5.6505	Ohio	5.7537
New Jersey and Delaware	5.6509	Indiana	5.7604
Pennsylvania	5.6756	Alabama	5.7647
Massachusetts and Connecticut	5.6821	Illinois	5.7696
Vermont and New Hampshire	5.6951	South Carolina	5.7729
Maryland	5.7130	Kentucky	5.7729
Missouri	5.7162	Tennessee	5.7779
Maine	5.7314	North Carolina	5.7814
Virginia	5.7488	Georgia	5.8272

Blond races are characterized by superior stature. The American Indian is a striking exception. Even though only 121 Indians were measured for this table, Gould finds, in an investigation of 517 Indians, a mean height of 68.225 inches.

TABLE 28.—*Height as affected by nationality.*

Order of superiority.	Nativity.	Number of men examined.	Mean height (inches).
1	United States, Indians	121	67.934
2	United States, whites	315,620	67.672
3	Norway	2,290	67.467
4	Scotland	3,476	67.086
5	British America	21,645	67.014
6	Sweden	1,190	66.896
7	Ireland	50,537	66.741
8	Denmark	383	66.648
9	Holland	989	66.637
10	Hungary	89	66.584
11	England	16,196	66.577
12	Germany	54,944	66.536
13	United States, colored	25,828	66.531
14	Wales	1,104	66.418
15	Russia	122	66.393
16	Switzerland	1,802	66.381
17	West Indies	580	66.307
18	France	3,243	66.277
19	Poland	171	66.211
20	Mexico	91	66.110
21	Italy	339	66.009
22	South America	79	65.899
23	Spain	148	65.635
24	Portugal	81	65.432

While blond races have statures superior to those of dark races, the same condition by no means holds in detail among themselves, as is shown by the following table. Stature, then, depends upon race, and not upon complexion.

TABLE 29.—*Height and complexion.*

Nativity.	Light complexioned.	Dark complexioned.	Total.	Mean height of light complexioned.	Mean height of dark complexioned.
United States	126,445	64,176	190,621	67.652	67.775
British America	9,506	4,859	14,365	67.169	67.073
England	6,804	2,845	9,649	66.582	66.621
Ireland	20,378	8,617	28,995	66.755	66.735
Germany	20,559	9,041	29,600	66.531	66.396

[1] Medical statistics of the Provost Marshal General's bureau, Vol. I, p. 23.

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TABLE 30.—*Stature of adult males arranged in order of greatest stature (Roberts's Manual).*

Race or nationality.	Authority.	Height (inches).
Polynesians	Garuat, Beechey, Porter, Cook, Rollins, etc	69.33
English (professional class)	Anthropological committee	69.14
Patagonians	Musters, D'Orbigny	69.00
Angamis of the Naga Hills	Woodthorp	69.00
Negroes of the Kongo	Topinard	68.95
Scotch (all classes)	Anthropological committee	68.71
Kafirs (South Africa)	Sir A. Smith	68.50
Iroquois Indians	Gold	68.28
Todas of the Nilghiries	Marshall	67.95
Negroes of Calabar	Topinard	67.95
North American Indians	Baxter	67.93
Irish (all classes)	Anthropological committee	67.90
United States whites (all classes)	Baxter	67.67
English (all classes)	Anthropological committee	67.66
Norwegians	Beddoe, Baxter	67.66
Zulus	Roberts	67.19
English (laboring classes)	Anthropological committee	67.08
Canadians	Baxter	67.01
Tajiks of Ferghana and Samarkand	Ujfalvy	67.10
Swedes (immigrants to United States)	Baxter and Beddoe	66.90
Chippewa Indians	Oliver	66.90
Kabyles	Topinard	66.85
Welsh (all classes)	Anthropological committee	66.66
Danes (immigrants to United States)	Baxter	66.65
Dutch (immigrants to United States)	do	66.62
American negroes	do	66.62
English (immigrants to United States)	do	66.58
Hungarians (immigrants to United States).	do	66.58
English Jews	Anthropological committee	66.57
Germans (immigrants to United States)	Baxter	66.54
Swiss of Geneva	Dunant	66.43
Swiss (immigrants to United States)	Baxter	66.38
Russians (immigrants to United States)	do	66.38
Belgians	Quetelet	66.38
French (immigrants to United States)	Baxter	66.23
Poles (immigrants to United States)	do	66.20
French (upper classes)	De Quatrefages	66.14
Germans	Novara	66.10
Mexicans	Baxter	66.10
Berbers of Algeria	Topinard	66.10
Arabs	Various	66.08
Usbeks of Ferghana and Samarkand	Ujfalvy	66.08
Javanese	Novara	66.08
Russians	Shultz	66.04
Italians (immigrants to United States)	Baxter	66.00
South Americans (immigrants to United States).	do	65.90
Australian aborigines	Various	65.68
Austrian Slavs	Ujfalvy	65.66
Galchas (Iranian mountaineers)	do	65.66
Spaniards (immigrants to United States)	Baxter	65.66
Berbers of Algeria	Topinard	65.62
Portuguese (immigrants to United States).	Baxter	65.43
Ainos	Rosky	65.33
Austrian Germans	Novara	65.27
French (working classes)	De Quatrefages	65.24
Esquimaux of North America	Various	65.10
Hungarians (military statistics)	Scheiber and Beddoe	65.04
Caucasians	Shortt	64.93
New Guinea (various tribes)	Various	64.78
Hindoos	Shortt	64.76
Bavarians	Novara	64.68
Ruthenians	Majer and Kopernicki	64.54
Dravidians	Shortt	64.50
Cingalese	Davy	64.48
Austrian Roumanians	Novara	64.37
Chinese	do	64.17
Italians	An. de Statist. 1879	64.00
Fuegans	Novara	63.98
Polish Jews	Majer and Kopernicki	63.88
Poles	do	63.87
Finns	Novara	63.60
Papuans	Various	63.20
Japanese	Mrs. Ayrton	63.11
Aymaras Indians (Peru)	Forbes	63.00
Peruvians	D'Orbigny	63.00
Cochin-Chinese	Finlayson	62.70
Malays	Raffles, Crawford, etc	62.34
Veddas of Ceylon	Bailey	60.42
Lapps	Horch	59.20

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TABLE 30.—*Stature of adult males arranged in order of greatest stature (Roberts's Manual)*—Continued.

Race or nationality.	Authority.	Height (inches).
Andamanese	Man	58.70
Aëtas	De Quatrefages	58.30
Semangs	....do	57.00
Mincopese	....do	56.53
Bosjesmans (Bushmen of South Africa)	Various	52.78

Difference between tallest and shortest, 16.55 inches.
Average stature of man according to table, 65.25 inches.

TABLE 31.—*Height and weight at certain ages—Forbes.*[1]

Ages.	English.		Scotch.		Irish.		Belgian.	
	Height.	Weight.	Height.	Weight.	Height.	Weight.	Height.	Weight.
	Inches.	*Pounds.*	*Inches.*	*Pounds.*	*Inches.*	*Pounds.*	*Inches.*	*Pounds.*
18	68.1	138.0	68.55	139.0	68.7	145.5	67.2	134.0
20	68.7	144.0	69.1	146.5	69.8	148.0	67.9	143.0
21	68.7	146.0	69.2	148.5	70.0	151.0	68.8	145.5
23	68.9	149.0	69.3	151.0	70.2	154.0	68.2	148.5
24	68.9	150.0	69.3	152.0	70.2	155.0	68.2	149.5

Institutions.	Height.	Weight.
	Inches.	*Pounds.*
Virginia Military Institute	69	141.25
United States Military Institute, West Point	69	143.67
Southern California Medical College	69+	145.25
Jefferson College, Philadelphia, Pa	69+	145.00
Louisiana University	70.2	145.25
Nashville University Medical College	70.0	150.17
Michigan College	68.8	150.80

[1] Charleston Journal 13, 1858, p. 502.

TABLE 32.—*Cincinnati police standard (Dun).*

I. Age. (1) Patrolmen must be between the ages of 21 and 40 years.
(2) Lieutenants must be between the ages of 21 and 50 years.
II. Height, weight, etc. Minimum height 5 feet 7½ inches.

Height.		Weight.	Chest measure.
Ft.	*in.*	*Pounds.*	*Inches.*
5	7½	140	34
5	8	144	34½
5	9	148	35
5	10	152	35½
5	11	156	36
6	..	160	37

Metropolitan police force of New York City.

I. Applicants must be between the ages of 21 and 30 years.
II. Height, weight, etc. Minimum height, 5 feet 7½ inches.

Height.		Weight.	Chest measure.
Ft.	*in.*	*Pounds.*	*Inches.*
5	7½	138	33½
5	8	140	34
5	9	145	34½
5	10	150	35
5	11	155	35½
6	..	160	36
6	1	165	36½
6	2	170	37
6	3	175	37½
6	4	180	38

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United States Army standard.

I. Must be between the ages of 21 and 36 years.
II. Weight, height, etc.

Height.	Weight (Dr. Greenleaf, United States Army).	Weight (Adjutant General's).	Chest measure.
Ft. *in.*	*Pounds.*		
5 4	128	120 pounds.....	No stated measures are required.
5 5	130		
5 6	132		
5 7	134		
5 8	141	Range between the figures in this column.	
5 9	148		
5 10	155		
5 11	162		There must be 2 inches chest expansion.
6 0	169		
6 1	176		
6 2	184	190 pounds.....	

English Army standard.

Height.	Weight.	Chest measure.
Ft. *in.*	*Pounds.*	*Inches.*
5 6	133–140	38–39
5 7	140–147	39–40
5 8	147–155	40–41
5 9	155–164	41–42
5 10	164–174	42–43
5 11	174–185	43–44
6 0	185–196	44–45

Hutchinson's table of healthy weight.

From the average of 2,648 well-formed, healthy persons.

Height.	Weight.
Ft. *in.*	*Pounds.*
5 7	148
5 8	155
5 9	162
5 10	169
5 11	174
6 0	178

(D) COMPARATIVE TABLES OF HEIGHT AND WEIGHT.

The table following gives in comparative form the average heights and weights, arranged according to age and chronological order, of the most important investigations so far made within this field. For full titles of investigations here mentioned, see the bibliography which follows.

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TABLE 33.—*Height and increments, in inches, according to various measurements.*

Ages, in years.	1		2		3		4		5		6		7		8		9		10	
	Quetelet, 1836, Belgium (10 of each age and sex).[1]		Zeising, 1854, Belgium.		Cowell, 1860, Manchester, England.		Boyd, 1861, London.		Bowditch, 1875, Boston (13,695 M., 10,904 F.).[2]		Medical statistics of provost marshal general, 1875 (190,621 American-born whites fit for Army).[3]		Bowditch, 1878, foreign.[4]		Roberts, 1878, England, artisan class (13,931).[5]		Roberts, 1878, England, favored classes (7,709).		Roberts, 1878, English towns (2,613).	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0	19.7	19.4					12.20	17.50												
1	7.8	7.8					1 to 2 years.													
2	27.5	27.2					28.50	27.70												
3	3.6	3.5					3 to 4 years.													
4	31.1	30.7					31.60	31.60							38.45					
5	2.9	2.9					5 to 6 years.		41.57	41.19					2.71					
6	38.0	33.6					37.50	37.00	43.75	43.35					41.16					
7	2.4	2.3							2.18	2.16					2.02					
8	38.9	38.3							45.74	45.52					43.18				46.16	
9	2.3	2.3							2.02	2.06					1.98				1.15	
10	41.2	40.6							47.76	47.58					45.99				47.31	
11	2.3	2.2							1.93	1.79					2.23				2.87	
12	43.5	42.8							49.69	49.37			52.00		49.22				50.18	
13	2.2	2.2							1.99	1.97			1.51		1.30				2.55	
14	45.7	45.0	49.34						51.68	51.34			53.51		50.52		53.40		52.73	
15	2.3	2.1	.24						1.65	2.08			1.45		1.00		1.51		1.11	
16	48.0	47.1	49.58				7 to 13 years.		53.33	53.42			54.96		51.52		54.91		53.84	
17	2.1	2.1	1.76						1.78	2.46			1.82		1.47		2.06		1.67	
18	50.1	49.2	51.34		50.5	49.5	47.00	45.00	55.11	55.88			56.78		52.99		56.97		55.51	
19	2.1	2.0	.74		.8	2.2			2.10	2.3			2.82		2.94		1.82		2.79	
20	52.2	51.2	52.08		51.3	51.7			57.21	58.20			59.60		55.93		58.79		58.30	
21	1.9	2.0	1.46		1.9	1.9			2.66	1.7			1.90		1.83		2.32		1.54	
22	54.1	53.2	53.54		53.2	53.6			59.88	59.94			61.50		57.76		61.11		59.84	
23	1.9	1.9	1.58		1.6	2.0			2.48	1.2			2.70		2.82		2.36		2.76	
24	56.0	55.1	55.12		54.8	55.6			62.36	61.10			64.20		60.58		63.47		62.60	
25	1.8	1.8	1.18		1.9	2.3			2.64	.5			1.63		2.35		2.93		2.50	
26	57.8	56.9	56.30		56.7	57.9			65.00	61.58	64 11		65 83		62.93		66.40		65.10	
27	1.8	1.7			2.4	.8			1 16	.8	1 84		1 61		1.82		1.46		1.64	
28	59.6	58.6			59.1	58.7	14 to 19 years.		66.16	61.92	65 95		67.44		64.45		67.86		66.74	
29	1.6	1.3			2.1	.8														
30	61.2	59.9			62.2	59.5	60.50	57.70												
31	1.6	1.0			1.6	1.2														
32	62.8	60.9			63.8	60.7														

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18	1.4	.6							.50	.0	.74		.0		1.02		.43		1.26	
	64.2	61.5							66.66	61.96	66.39		67.44		65.47		68.29		68.00	
19	1.0	.3									3.68				.55		.43		1.16	
	65.2	61.8									67.07				66.02		68.72		69.16	
20	.5	.2									.44				.29		.41			
	65.7	62.0									67.51				66.31		69.13			
21											.27						.03			
											67.78						69.16			
22											.14						.77			
											67.92				66.60		69.93			
23											.09						−.41			
							20 to 29 years.				68.01						68.52			
24											.01						.43			
							66.75	62.00			68.02						68.95			
25											.03									
	66.2										68.05									
26											.04									
											68.09				66.68					
27											.02									
											68.11									
28											.02									
											68.13						69.06			
29											.01									
											68.17									
30											.01									
	66.4										68.18									
31											.02									
											68.20									
32											.00									
											68.20									
33											.09									
							30 to 39 years.				68.29									
34											.06									
							66.50	62.00			68.35									
35											.12									
											68.47									
36											−.19									
											68.28								67.93	
37											−.02									
											68.26									
38											.02									
											68.24									
39											−.01									
											68.23									
40											.00									
	66.4						(5)				68.23									

[1] See Quetelet (in bibliography), fourth reference.
[2] See Bowditch, first reference.
[3] See Sternberg.
[4] See Bowditch, second reference.
[5] See Roberts, first reference.
[6] According to Boyd's measurements, in 1861, London, the heights were, for ages 40 to 50 years, males 66.80, females 62; 50 to 60 years, males 66, females 62; 60 to 70 years, males 65.70, females 61.50; 70 to 80 years, males 65.70, females 61; 80 to 90 years, males 66.70, females 60.

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TABLE 33.—*Height and increments, in inches, according to various measurements*—Continued.

Ages, in years.	11		12		13		14		15		16		17		18		19		20		21		22	
	Roberts, 1878, English soldiers, policemen, etc. (29,525).		Roberts, 1878, English feeble-minded (829).		Roberts, 1878, England, all classes (30,000+).		Roberts, 1878, English Friends' School (4,661).		Kotelmann, 1879, Hamburg (515).		Anthrop. Com., 1880, England, schools, military and naval colleges (29,405).[1]		Peckham, 1881, Milwaukee (U. S.) schools (4,773 M., 4,891 F.).		Hertle, 1882, Denmark (17,134 M., 11,250 F.).[2]		Peckham, 1882, American.[3]		Peckham, 1882, American (1 M., 1 F.).		Peckham, 1882, American (1 M., 1 F.).		Peckham, 1882, American (1).	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0					19.52	19.31																		
1					7.48	5.52																		
					27.00	24.83																		
2					.20	4.83														29.1				
					33.70	32.33																		
3					3.12	3.72																		
					36.82	36.05																		
4					1.64	2.09																		
			38.00		38.46	38.14					36.8	36.2	39.98	39.65						38.3		40.0		
5			2.03		2.57	1.68					1.7	2.1	2.30	2.07						2.6		1.5		
	41.25		40.03		41.03	40.82					38.5	38.3	42.28	41.72						40.9		41.5		
6	1.72		2.20		2.97	1.81					2.5	2.3	1.80	2.06						1.6		2.9		
	42.97		42.23		44.00	42.63					41.0	40.6	44.08	43.78	44.1	44.1			46.3	42.5		44.4		
7	2.25		1.89		1.97	1.82					3.0	2.3	2.01	2.15	1.2	1.2			1.7	1.8		2.0		
	45.22		44.12		45.97	44.45					44.0	42.9	46.09	45.93	45.3	45.3			48.0	44.3		46.4		
8	1.76		1.62		1.08	2.15					2.0	1.6	1.96	1.66	1.9	1.9			2.0	2.2		1.9		
	46.98		45.74		47.05	46.60					46.0	44.5	48.05	47.59	47.2	47.2			50.0	46.5		48.3		47.7
9	1.96		1.75		2.65	2.13					1.1	1.1	1.95	2.22	2.0	2.0			1.8	1.7		1.7		1.6
	48.94		47.49		49.70	48.73	51.5		50.6		47.1	46.6	50.00	49.81	49.2	49.2			51.8	48.2		50.0		49.3
10	1.37		1.62		2.14	3.12	1.8		.9		2.6	2.1	1.85	2.08	2.0	2.0			1.7	1.7		2.0		1.9
	50.31		49.11		51.84	*51.85*	53.3		51.5		49.7	48.7	51.85	*51.89*	51.2	51.2			53.5	49.9		52.0		51.2
11	.89		1.86		1.66	1.25	3.1		1.7		2.1	2.4	1.91	1.91	1.9	1.2			1.2	2.5		1.2		2.1
	51.20		50.97		53.50	53.10	56.4		53.2		51.8	51.1	53.76	*53.8*	53.1	52.4			54.7	52.4		53.2		53.3
12	1.30		1.49		1.49	2.46	1.3		1.9		1.7	2.0	1.24	2.7	1.2	1.9			1.4	1.5		1.9		2.7
	52.52		52.46		54.99	*55.56*	57.7		55.1		53.5	53.1	55.0	*56.5*	54.3	54.3		55.9	56.1	53.9		55.1		56.0
13	2.13		2.29		1.92	2.21	2.2		1.2		1.5	3.6	2.5	2.2	2.0	3.2		.6	1.9	2.3		1.0		2.5
	54.65		54.75		56.91	*57.77*	59.9		56.3		55.0	*56.7*	57.5	*58.7*	56.3	*57.5*		56.5	58.0	56.2		56.1		58.5
14	1.43		1.78		2.42	2.03	2.2		2.3		1.9	1.1	2.4	1.8	2.4	1.9		2.6	1.3	2.2		2.4		1.9
	56.08		56.53		59.33	*59.80*	62.1		58.6		56.9	*57.8*	59.9	*60.5*	58.7	*59.4*		59.1	59.3	58.4	57.9	*58.5*		60.4
15	3.09		2.78		2.91	1.13	2.1		2.1		2.4	2.0	2.4	1.1	2.7	1.2		2.5	3.2	2.0	1.8	2.2		.8
	59.17		59.31		62.24	60.93	64.2		60.7		59.3	*59.8*	62.3	61.6	61.4	60.6		61.6	62.5	61.0	59.4	*60.7*		61.2
16	4.82		1.43		2.07	.92	1.9		3.0		2.0	1.1	2.8	.6	3.2	2.0		1.9	3.6	.9	3.1	1.3		1.1
	63.99		60.74		64.31	61.75	66.1		63.7		62.2	*60.9*	65.1	62.2	64.6	62.6		63.5	66.1	*61.9*	62.5	62.0		62.3

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17....	2.01		1.98		1.93	.77	1.1		2.0		2.1	.8	1.5	.7	1.1			.3	2.8	.7	3.2	.5		
	65.91		62.67		66.24	62.52	67.2		65.7		64.3	61.7	66.6	62.9	65.7			63.8	68.9	62.6	65.7	62.5		61.3
18....	.87		.54		.72	−.08			.6		1.9	.8		−.4	1.2				1.0	.4	1.1	1.0		.2
	66.78		63.21		66.96	62.44			66.3		66.2	62.5		62.5	66.9			63.8	69.9	63.0	66.8	63.5		61.5
19....	.41		−.02		.33	.31			−.6		.8	−.1			0.0				1.0	.5				
	67.19		63.19		67.29	62.75			65.7		67.0	62.4			66.9			63.8	70.9	63.5	66.8	63.5		
20....	.07		.99		.23	.23			.1		.3	.4												
	67.26		64.18		67.52	62.98			65.8		67.3	62.8												
21....	.27		.07		.11	.05					.2	.2												
	67.53		64.25		67.63	63.03					67.5	63.0												
22....	.09		.25		.05	−.16					.1	.0												
	67.62		64.50		67.68	62.87					67.6	63.0												
23....					−.20	.14																		
					67.48	63.01																		
24....					.24	−.31																		
					67.72	62.70																		
25....					.03																			
					67.75																			
26....					.03																			
					67.78																			
27....					.14																			
	67.93				67.92																			
28....					−.22																			
					67.70																			
29....					.17																			
					67.87																			
34....					67.89																			
36....	67.22		64.87																					
39....					68.09																			
45....					67.96																			
47....					67.92																			
49....					67.41																			
51....					69.22																			

[1] See Galton, seventh reference.

[2] See Hertel, third reference.

[3] See Peckham, first reference.

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TABLE 33.—*Height and increments, in inches, according to various measurements*—Continued.

Age, in years.	23		24		25		26		27		28		29		30		31		32	
	Peckham, 1882, American (1).		Peckham, 1882, Beloit College (533).		Peckham, 1882, American children (216).		Thoma, 1882, Germany, volksschüler.[1]		British report, 1883, English (first 4 years from Holt).		Shuttleworth, 1884, England.				Daffner, 1884, Germany (426 M., 344 F.).[2]		Daffner, 1884, Germany.		Daffner, 1885, Germany (700).	
											General population.		Idiots and imbeciles (209).							
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0									20.6	20.5					20.44	20.44				
1									8.4	8.2					8.60	9.90				
2									29.0	28.7					29.04	*30.54*				
3					29.53	29.67			3.5	3.8					4.49	2.47				
4		32.7			4.29	3.27			32.5	32.5					33.53	32.81				
5		2.9			33.82	32.94			2.5	2.5					2.58	2.55				
6		35.6			3.24	3.37			35.0	35.0					36.11	35.36				
7		2.5			37.06	36.31			3.0	3.0					1.87	2.35				
8		38.1							38.0	38.0	41.0	40.55	40.00	39.50	37.98	37.71				
9		1.6							3.0	1.5	2.0	2.25	2.25	1.75	2.49	1.74				
10		39.7							41.0	40.5	43.0	42.80	42.25	41.25	40.47	39.45				
11		2.6							3.0	2.3	2.0	1.65	1.75	2.00	1.19	1.41				
12		42.3					47.95		44.0	42.8	45.0	44.45	44.00	43.25	41.66	40.86				
13		1.9					1.10		2.0	1.7	2.0	2.15	1.75	2.00						
14		44.2					49.05		46.0	44.5	47.0	46.60	45.75	45.25						
15		1.8					1.70		1.0	2.1	2.0	2.13	1.75	2.25						
16		46.0					50.75		47.0	46.6	49.0	48.73	47.50	47.50						
17		2.0					2.05		2.7	2.1	2.0	2.32	1.50	1.50						
18		48.0					52.80		49.7	48.7	51.0	51.05	49.00	49.00						
19		1.3					1.88		2.1	2.3	2.0	2.05	2.00	2.00						
20		49.3					54.68		51.8	51.0	53.0	*55.10*	51.00	51.00						
21		2.4					1.74		1.7	2.1	2.0	2.56	1.50	2.00						
22		51.7					56.42		53.5	53.1	55.0	*55.66*	52.50	*53.00*						
23		1.0					6.46		1.5	2.5	2.5	2.11	2.25	2.00						
24		52.7					*62.88*		55.0	*55.6*	57.5	*57.77*	54.75	*55.00*						
25		2.0							2.0	2.1	2.5	2.03	1.75	1.50					58.14	
26		54.7	63.34						57.0	*57.7*	60.0	59.80	56.50	56.50					.48	
27		2.4	1.79						2.3	2.1	2.0	1.13	2.75	1.50					58.62	
28		57.1	65.13						59.3	*59.8*	62.0	60.93	59.25	58.00					5.64	
29		2.4	.91						2.9	1.1	2.0	.82	1.50	1.00					64.26	
30		59.5	66.04						62.2	60.9	64.0	61.75	60.75	59.00					−.29	
31									2.1	0.8	1.5	.77	1.75	1.25					63.97	
32									64.3	61.7	65.5	62.52	62.50	59.25			64.0	59.1	2.13	
33									1.9	.8	1.0	.92	.75				.6	.7	66.09	
34									66.2	62.5	66.5	62.44	63.25				64.6	59.8		

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18			1.84						.7	—.1	.5	.31	.00				1.1	.8	1.46	
			67.88						66.9	62.4	67.0	62.75	63.25				65.7	60.6	67.46	
19			.23						.4	.3	.25	.23	.75				.8	.8	.36	
			68.11						67.3	62.7	67.25	62.98	64.00	59.50			66.5	61.4	67.82	
20			.43						.2	.2	.25	.05	.25				.6	.6	.55	
			68.54						67.5	62.9	67.5	63.03	64.25				67.1	62.0	68.37	
21			.23						.1	.1		—.16	.25				.6	.6	—2.35	
			68.77						67.6	63.0		62.87	64.50				67.7	62.6	66.02	
22			—.10									.14					.6	.6	3.25	
			68.67									63.01					68.3	63.2	69.27	
23			.29									—.31					.8	.6		
			68.96									62.70					69.1	63.8		
24			.34														.0	.8		
			69.30														69.1	64.6		
25			.41														1.8	1.0		
			69.71														70.9	65.6		
26																	.8	.7		
																	71.7	66.3		
27																				
28											67.75	62.02	64.75	59.75						

[1] One-half year should be added to the ages given for the measurements in this column.

[2] See Daffner, first reference.

TABLE 33.—*Height and increments, in inches, according to various measurements*—Continued.

Age, in years.	33		34		35		36		37		38		39		40		41		42		43	
	Greenwood, 1886, American, white (724).		Greenwood, 1886, American, negro (223).		Michailoff, 1887, Russia, Dorfschüler.[1]		Michailoff, 1887, Russia, Elementarschül.[1]		Michailoff, 1887, Russia, Stadtschüler.[1]		Cordeiro, 1887, M. D. in United States Navy (5,401).		Suligowski, 1887, Radom (1,133).		Landsberger, 1888, Posen (104).[2]		Erismann, 1888, Moscow, (3,212 M., 1,495 F.).[3]		Erismann, 1888, Russia.		Stevenson, 1887, English-speaking people from England and America.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
5																					41.30	41.05
6															42.1						2.58	1.94
															2.1						43.88	42.99
7															44.2		44.1	43.9			1.98	1.99
															2.00		2.3	1.9			45.86	44.98
8					46.34	46.3	47.42		46.38	45.80					46.2		46.4	45.8			1.55	2.11
					1.30	1.54	1.46		1.96	1.28					1.9		1.9	1.3			47.41	47.09
9					47.64	47.84	48.88		48.34	47.08			49.6		48.1		48.3	47.1	47.29		2.28	1.96
					2.20	1.38	1.74		3.16	2.12			1.5		1.3		3.2	2.1	.90		49.69	49.05
10					49.84	49.22	50.62		51.50	49.20			51.1		49.4		51.5	49.2	48.19		2.07	2.14
					1.16	1.36	1.30		1.88	1.84			1.6		1.8		1.9	1.9	1.53		51.76	51.19
11	52.3	51.5	50.2	51.6	51.00	50.58	51.92		53.38	51.04			52.7		51.2		53.4	51.1	49.72		1.71	2.07
	1.0	1.7	.4	1.9	1.70	1.80	1.46		1.78	1.26			1.4		2.0		1.8	1.2	1.42		53.47	53.26
12	53.3	53.2	50.6	53.5	52.70	52.38	53.38		55.16	52.30			54.1		53.2		55.2	52.3	51.14		1.58	2.51
	2.1	2.2	3.4	2.0	1.58	1.86	1.92		2.08	2.12			2.4		1.9		2.0	2.2	1.77		55.05	*55.77*
13	55.4	55.4	54.0	*55.5*	54.28	54.24	55.30		57.24	54.42	59.00		56.5		55.1		57.2	54.5	52.91		2.01	2.19
	1.9	1.8	1.7	1.5	1.18		1.96		1.88	2.96	2.10		2.2				1.9	2.9	1.31		57.06	*57.96*
14	57.3	*57.2*	55.7	*57.0*	55.46		57.26		59.12	57.38	61.10		58.7				59.1	57.4	54.22		2.54	1.91
	2.2	2.0	2.1	2.1	1.42				2.46	.24	2.36		2.8				2.5		1.37		59.60	*59.87*
15	58.5	*59.2*	57.8	*59.1*	56.88				61.58	57.62	63.46		61.5				61.6		55.59		2.67	1.14
	4.3	2.6	4.3	1.5					1.96	1.53	1.48		2.0				1.9		2.16		62.27	61.01
16	62.8	61.8	62.1	60.6					63.54	59.15	64.94		63.5				63.5		57.75		2.39	.66
									1.00				1.7				1.1		2.57		64.66	61.67
17									64.54				65.2				64.6		60.32		1.54	.55
													.3						2.12		66.20	62.22
18													65.5						62.44		.61	−.03
													−.2						1.26		66.81	62.19
19													65.3						63.70			
													−1.1						.71			
20													66.4						64.41			
													−.7						.31			
21													65.7						64.72			

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Ages, in years.	44		45		46		47		48		49		50		51		52		53		54	
	Carstädt, 1888, Breslau (600).		Karlstädt, 1888, Germany (Höhere Schule).[1]		Geissler, 1888, Gohlis (1,386 M., 1,420 F.).		Key, 1889, Sweden (15,000 M., 3,000 F.).[4]		Simon, 1889, French (223).		Pagliani, 1890, Turin (1,098 M., 968 F.).		Stevenson, 1888-1890, England, nonlaboring.		Stevenson, 1888-1890, England, laboring.		Wiener, 1890, German (1).		Wiener, 1890, German (1).		Wiener, 1890, German (1).	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0																	21.16	.....	18.11	.....	20.63	.....
1																	7.07	.....	9.76	.....	8.58	.....
																	28.23	.....	27.87	.....	29.21	.....
2																	5.08	.....	5.12	.....	4.81	.....
																	33.31	.....	32.99	.....	34.02	.....
3																	3.34	.....	3.34	.....	3.07	.....
											33.9	33.3					36.65	.....	36.33	.....	37.09	.....
4											2.3	2.7					2.76	.....	3.23	.....	3.02	.....
											36.2	36.0					39.41	.....	39.56	.....	40.11	.....
5											2.0	2.0					2.48	.....	2.96	.....	2.41	.....
											38.2	38.0					41.89	.....	42.52	.....	42.52	.....
6											2.5	2.2					2.88	.....	2.37	.....	2.56	.....
	43.0	.....			43.4	43.0	45.6	44.5			40.7	40.2					44.77	.....	44.89	.....	45.08	.....
7	1.8	.....			1.6	1.8	2.0	1.2			3.6	2.8					2.39	.....	2.20	.....	2.32	.....
	44.8	.....			45.0	44.8	47.6	45.7			44.3	43.0					47.16	.....	47.09	.....	47.40	.....
8	2.0	.....			2.0	1.5	2.0	2.7			2.3	2.5					2.13	.....	2.12	.....	2.09	.....
	46.8	.....	47.88	.....	47.0	46.3	49.6	48.4	43.58	.....	46.6	45.5					49.29	.....	49.21	.....	49.49	.....
9	1.9	.....	1.73	.....	1.8	2.5	2.0	1.6	1.94	.....	2.2	2.1					2.08	.....	2.08	.....	2.12	.....
	48.7	.....	49.61	.....	48.8	48.8	51.6	50.0	45.52	.....	48.8	47.6					51.37	.....	51.29	.....	51.61	.....
10	1.9	.....	1.88	.....	2.0	1.8	.8	2.0		.....	1.0	2.5					1.70	.....	1.78	.....	2.21	.....
	50.6	.....	51.49	.....	50.8	50.6	52.4	52.0		.....	49.8	*50.1*	53.0	.....	50.5	.....	53.07	.....	53.07	.....	53.82	.....
11	1.9	.....	1.90	.....	1.3	2.1	1.1	1.9		.....	1.1	1.6	1.5	.....	1.0	.....	2.32	.....	2.28	.....	2.17	.....
	52.5	.....	53.39	.....	52.1	*52.7*	53.5	*53.9*	49.33	.....	50.9	*51.7*	54.5	.....	51.5	.....	55.39	.....	55.35	.....	55.99	.....
12	1.9	.....	1.84	.....	2.3	2.2	1.6	2.4	2.60	.....	1.7	2.1	2.0	.....	2.0	.....	2.17	.....	2.24	.....	1.18	.....
	54.4	.....	55.23	.....	54.4	*54.9*	55.1	*56.3*	52.02	.....	52.6	*53.8*	56.5	.....	53.5	.....	57.56	.....	57.59	.....	57.17	.....
13	2.0	.....	2.17	.....	1.0	2.2	1.6	2.0	.76	.....	2.4	2.3	2.0	.....	2.0	.....	3.34	.....	3.23	.....	2.63	.....
	56.4	.....	57.40	.....	55.4	*57.1*	56.7	*58.3*	52.78	.....	55.0	*56.1*	58.5	.....	55.5	.....	60.90	.....	60.82	.....	59.80	.....
14	2.3	.....	2.56	.....	.....	.....	2.0	1.9	2.93	.....	2.2	2.8	2.5	.....	2.5	.....	3.75	.....	2.73	.....	2.05	.....
	58.7	.....	59.96	.....	.....	.....	58.7	*60.2*	55.71	.....	57.2	*58.9*	61.0	.....	58.0	.....	64.65	.....	63.55	.....	61.85	.....
15	3.0	.....	.....	.....	.....	.....	2.7	1.6	2.04	.....	2.6	1.2	2.5	.....	2.5	.....	1.89	.....	3.03	.....	3.70	.....
	61.7	.....	.....	.....	.....	.....	61.4	*61.8*	57.75	.....	59.8	*60.1*	63.5	.....	60.5	.....	66.54	.....	66.58	.....	65.55	.....
16	2.4	.....	.....	.....	.....	.....	2.4	.8	2.37	.....	2.4	.5	3.0	.....	2.5	.....	.94	.....	1.65	.....	2.25	.....
	64.1	.....	.....	.....	.....	.....	63.8	62.6	60.12	.....	62.2	60.6	66.5	.....	63.0	.....	67.48	.....	68.23	.....	67.80	.....
17	.....	.....	.....	.....	.....	.....	1.9	.4	1.18	.....	.8	.4	1.5	.....	1.5	.....	.51	.....	.71	.....	1.38	.....
	.....	.....	.....	.....	.....	.....	65.7	63.0	61.30	.....	63.0	61.0	68.0	.....	64.5	.....	67.99	.....	68.94	.....	69.18	.....

[1] One-half year should be added to the ages given for the measurements in this column.
[2] See Landsberger, first reference.
[3] See Erismann, first reference.
[4] See Key, first reference.

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TABLE 33.—*Height and increments, in inches, according to various measurements*—Continued.

Ages, in years.	44		45		46		47		48		49		50		51		52		53		54	
	Carstädt, 1888, Breslau (600).		Karlstädt, 1888, Germany (Höhere Schule).		Geissler, 1888, Gohlis (1,396 M., 1,420 F.).		Key, 1889, Sweden (15,000 M., 3,000 F.).[1]		Simon, 1889, French (223).		Pagliani, 1890, Turin (1,098 M., 968 F.).		Stevenson, 1888–1890, England, nonlaboring.		Stevenson, 1888–1890, England, laboring.		Wiener, 1890, German (1).		Wiener, 1890, German (1).		Wiener, 1890, German (1).	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
18							1.2	0.0			0.3	0.0	0.5		1.0		0.04		0.46		0.34	
							66.9	63.0			63.3	61.0	68.5		65.5		68.03		69.40		69.52	
19							.4	.8			.4		.2		.5		.04		.08		.36	
							67.3	63.8			63.7		68.7		66.0		68.07		69.48		69.88	
20							.4	—.8					.3		.2				.04		.11	
							67.7	63.0	62.64				69.0		66.2		68.07		69.52		69.99	
21													.0		.3							
													69.0		66.5							
23									62.95													
25																	.12		.04		.17	
																	68.19		69.56		70.16	
30													69.0		66.5							

Age, in years.	55		56		57		58		59		60		61		62		63		64		65	
	Wiener, 1890, German (1).		Greenwood, 1890, foreign (385).		Greenwood, 1890, American white (2,619).		Greenwood, 1890, American negro (574).		Hasse, 1891, Germany, I Bürgerschule.[2]		Hasse, 1891, Germany, II Bürgerschule.[2]		Geissler, 1892, Freiburg (10,343 M., 10,830 F.).[3]		Barnes, 1892, Oakland, Cal. (4,956).		Schmidt, 1892, Sallfeld (4,699 M., 4,807 F.).		Porter, 1893, St. Louis, (16,295 M., 18,059 F.).[4]		Hanna, 1893, Oberlin College (500 F. students).	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0	21.65																					
1	7.48																					
	29.13																					
2	4.69																					
	33.82																					
3	3.70																					
	37.52																					

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4	3.51																					
	41.03																					
5	2.75																					
	43.78																					
6	2.16																					
	45.94													42.8	42.5	44.1	44.4	43.0	42.7	42.9	42.4	
7	2.88													1.5	1.6	.9	.5	2.0	2.2	2.0	2.1	
	48.82													44.3	44.1	45.0	44.9	45.0	44.9	44.9	44.5	
8	2.51													2.0	1.8	2.6	1.9	2.2	1.7	2.0	2.1	
	51.33								47.44	47.44	46.70	45.80	46.3	45.9	47.6	46.8	47.2	46.6	46.9	46.6		
9	2.33								2.17	2.17	1.68	2.70	1.8	1.9	1.7	2.4	2.0	2.2	2.1	2.1		
	53.66								49.61	49.61	48.38	48.50	48.1	47.8	49.3	49.2	49.2	48.8	49.0	48.7		
10	2.01								1.92	1.64	2.00	1.92	1.5	1.8	2.6	2.3	1.3	2.1	1.7	1.9		
	55.67								51.53	51.25	50.38	50.42	49.6	49.6	51.9	51.5	50.5	*50.9*	50.7	50.6		
11	1.81								1.31	1.94	1.46	2.08	1.8	2.0	1.6	2.4	1.8	1.7	2.0	1.8		
	57.48			50.50	52.00	51.68	51.00	49.80	52.84	*53.19*	51.84	*53.50*	51.4	51.6	53.5	*53.9*	52.3	*53.6*	52.7	52.4		
12	2.72			2.30	1.00	1.02	2.36	3.00	1.96	2.71	2.40	1.96	1.9	1.7	1.6	2.7	2.0	2.0	1.7	2.4		
	60.20		53.98	52.80	53.00	52.70	53.36	52.80	54.80	*55.90*	54.24	*54.46*	53.3	53.3	55.1	*56.6*	54.3	*54.6*	54.4	*54.8*		
13	3.89		.79	3.76	3.00	1.32	.37	1.20	.79	2.05	1.06	2.34	1.9	2.4	1.7	3.4	1.7	2.2	1.9	2.9		
	64.09		54.77	*56.56*	56.00	54.02	53.73	*54.00*	55.59	*57.95*	55.30	*56.80*	55.2	*55.7*	56.8	*60.0*	56.0	*56.8*	56.3	*57.7*		
14	2.14		3.83	3.67	3.60	3.41	2.27	2.85	2.79	1.34	1.51	1.32			2.9	1.2			2.0	1.6		
	66.23		58.60	*60.23*	56.60	*57.43*	56.00	*56.85*	58.38	*59.29*	56.81	*58.12*			59.7	*61.2*			58.3	*59.3*		59.25
15	2.67		.45	1.88	2.00	2.88	2.88	1.90							2.1	.7			2.7	1.7		58.48
	68.90		59.05	*62.11*	58.60	*60.31*	58.88	58.75							61.8	*61.9*			61.0	61.0		
16	1.29		3.36	3.47	3.80	2.19	2.12	2.79							2.7	.8			2.1	1.0		59.76
	70.19		62.41	*65.58*	62.40	*62.50*	61.00	*61.54*							64.5	62.7			63.1	62.0		62.94
17	.59				1.50	.40	3.44	1.26							2.6	.0			1.9	.7		62.35
	70.78				63.90	62.90	64.44	62.80							67.1	62.7			65.0	62.7		61.34
18	.20				.90	.39	.56	3.2							.5	.5				.1		61.61
	70.98				64.80	63.29	65.00	66.00							67.6	63.2				62.8		62.01
19	.16				1.86	.91														—.4		62.56
	71.14				66.66	64.20														62.4		63.11
20	.08																					63.35
	71.22																					63.90
21																						65.17
22																						64.53
23																						64.88
27																						65.24
28																						65.71
31																						66.34
																						67.09
																						68.11

[1] See Key, first reference.
[2] One-half year should be added to the ages given for the measurements in this column.
[3] See Geissler, second reference.
[4] See Porter, second reference.

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TABLE 33.—*Height and increments, in inches, according to various measurements*—Continued.

Ages in years.	66		67		68		69		70		71		72		73		74		75		76		77	
	Hastings, 1893, American, Amherst College (1,321).[1]		Hastings, 1893, American, Amherst College (2,106).		Sack, 1893,[2] Russia, gymnasium.[3]		Hanna, 1893, Oberlin College (1,600 students).		Kosmowsky, 1894, Russia, farien kolonlel.[3]		Report of Surgeon General, U. S. Army, recruits accepted in 1894. Native white (4,547).[4]		Foreign-born white (2,388).		Negro (499).		Porter, 1894, St. Louis (15,525 M.; 16,527 F.).[5]		West, 1894, Worcester (3,250).[6]		Gilbert, 1894, New Haven (602 M., 584 F.).		Beyer, 1895, American naval cadets (4,537).[7]	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
5																			43.2	42.3				
																			1.2	1.5				
6																	42.89	42.19	44.4	43.8	45.0	44.9		
																	2.00	2.28	1.7	2.5	2.1	2.0		
7																	44.89	44.47	46.1	*46.3*	47.1	46.9		
																	2.01	2.13	2.1	1.6	1.8	1.5		
8					49.13				46.19	45.88							46.90	46.60	48.2	47.9	48.9	48.4		
					2.16				1.65	1.42							2.06	2.09	1.8	1.9	2.3	2.4		
9					51.29				47.84	47.30							48.96	48.69	50.0	49.8	51.2	50.8		
					1.39				2.04	1.96							1.77	1.87	2.8	2.5	1.8	2.0		
10					52.68				49.88	49.26							50.73	50.56	52.8	52.3	53.0	52.8		
					1.65				1.62	1.96							1.97	1.88	1.8	1.6	2.9	1.8		
11					54.33				51.50	51.22							52.70	52.44	54.6	53.9	55.9	54.6		
					1.77				1.96	1.97							1.71	2.33	1.7	3.1	1.1	3.3		
12					56.10				53.46	53.19							54.41	*54.77*	56.3	*57.0*	57.0	*57.9*		
					2.08				1.04	1.27							1.85	2.92	1.8	1.2	1.8	2.5		
13					58.18				54.50	54.46							56.26	*57.69*	58.1	*58.2*	58.8	*60.4*		
					3.08				4.54	2.23							2.24	1.69	2.6	2.3	.5	1.0		
14					61.26			58.2	59.04	56.69							58.50	*59.38*	60.7	60.5	59.3	*61.4*		
					2.29												2.48	1.66	3.2	1.3	3.5	1.1		
15					63.55												60.98	*61.04*	63.9	61.8	62.8	62.5	63.80	
					1.69												2.12	.98	1.4	.6	2.9	.0	2.13	
16					65.24			59.0			64.58						63.10	62.02	65.3	62.4	65.7	62.5	65.93	
					.95			59.8			1.86						1.91	.71	1.0	.4	1.4	1.1	1.12	
17	66.16		66.60		66.19			60.2			66.44						65.01	62.73	66.3	62.8	67.1	63.6	67.05	
	.43		.36		.51			60.7			1.01						2.08	.03	.6	—.2			.24	
18	66.59		66.96		66.70			61.4			67.45		66.65		66.10		67.09	62.76	66.9	62.6			67.29	
	—.52		.34		.21			61.7			—.04		.88		.57			—.38	.5	.1			.61	
19	66.07		67.30		67.01			62.4			67.41		67.53		66.67			62.38	67.4	62.7			67.90	
	1.73		.65		— 19			62.6			.69		— .87		1.02			.37	1.1	— .1			.60	
20	67.80		67.96		66.82			61.1			68.10		66.06		67.69			62.75	68.5	62.6			68.50	
	.08		.08					.5			.80		.49		.48			.24	—1.4	.1			.10	
21	67.73		68.04					61.5			67.21		67.10		67.24			62.68	67.1	62.7			68.40	

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Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	.43		.10					64.1			.47		.11		-.08								-.15	
22	68.15		68.11					64.5			67.68		67.28		67.16								68.45	
	.11		.20								.06		-.23		.21								.17	
23	68.26		68.31					64.9			67.74		67.03		67.37								68.62	
	.42		.13								-.18		.50		-.19									
24	68.68		68.44					65.5			67.56		67.53		67.18									
	.15		.24								-.01		-.61		.28									
25	68.83		68.68								67.55		66.92		67.46									
	-.39		.14								.10		.51		-.04									
26	68.44		68.82					66.3			67.65		67.43		67.42									
	-.12		-.52								-.20		-.39		.03									
27	68.32		68.30					67.0			67.45		67.04		67.45									
	.34		.22								.09		.37		-.34									
28	68.66		68.52								67.54		67.41		67.11									
	-.58		-.43								.24		-.11		.42									
29	68.08		68.09								67.78		67.30		67.53									
	1.11		1.10								-.03		-.10		-1.32									
30	69.19		69.19								67.75		67.20		66.21									
											-.08		.01		.26									
31											67.67		67.21		66.47									
											-.11		.05		1.28									
32								67.3			67.56		67.26		67.75									
											-.35		.00		-.99									
33											67.21		67.26		66.76									
											.73		-.16		.69									
34											67.94		67.10		67.45									
											-.76		.13		.49									
35											67.18		67.23		67.94									
											.22		-.06		-.70									
36											67.40		67.17		67.24									
											.07		-.48		.34									
37											67.47		66.69		67.58									
											-.37		.34		-.58									
38											67.10		67.03		67.00									
											.91		-.03		-1.56									
39											68.01		67.00		65.44									
											-.55		.23		1.64									
40											67.46		67.23		67.08									
											-1.05		-1.00		1.11									
41											66.41		66.23		68.19									

[1] See Hastings, fourth reference.
[2] See Sack, second reference.
[3] One-half year should be added to the ages given for the measurements in this column.
[4] See Sternberg.
[5] See Porter, second reference.
[6] See West, third reference
[7] See Beyer, first reference.

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TABLE 33.—*Height and increments, in inches, according to various measurements*—Continued.

Ages in years.	78		79		80		81		82		83		84		85		86		87		88		89	
	Hall, 1895, Pennsylvania (2,434).		Combe, 1896, Lusanne (2,000).		Boas, 1897, Oakland, Cal., (2,053 M., 2,377 F.).[1]		Boas, 1897, American (2,386 M., 1,967 F.).		Boas, 1897, American (45,151 M., 43,298 F.).		Gilbert,[2] 1897, Iowa (50 M., 50 F.).[3]		MacDonald, 1898, Washington (7,953 M., 8,520 F.), white.		Boas, 1898, half bloods and Indians.[4]		Hrdlicka, 1899, white.		Hrdlicka, 1899, colored.		Hrdlicka, 1899, Italian.		Smedley, 1900, Chicago (2,788 M., 3,471 F.).	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
3																			30.85	33.06				
																				2.61				
4																				35.67				
																			10.25	3.11				
5									41.69	41.29							41.26	38.35	37.84	39.52	41.10	38.78		
									2.24	2.05									3.54	2.21	2.24	4.14		
6					44.76	44.29	44.05	44.09	43.93	43.34	45.0	44.6	44.5	44.2					41.38	41.73	43.34	42.92	40.34	41.62	43.58	43.18
					1.70	1.97	1.37	2.01	2.06	2.36	*2.8*	*2.8*	1.5	.9					2.72	1.06	1.78	1.42	3.46	.92	44.59	44.30
7			46.2	45.8	46.46	46.26	46.42	46.10	45.99	45.70	47.8	46.8	46.0	45.1	42.87				44.10	42.79	45.12	44.34	43.80	42.54	45.60	45.43
			2.0	1.9	2.69	2.01	1.93	2.97	2.06	2.02	*1.8*	*2.4*	1.8	2.3	3.67				1.26	1.70	1.96	5.24	.82	1.12	46.61	46.54
8			48.2	47.7	49.15	48.27	48.35	48.07	48.05	47.72	49.6	49.2	47.8	47.4	46.54	51.03			45.36	44.49	47.08	*49.58*	44.62	43.66	47.61	47.44
			1.8	1.8	1.36	2.01	1.96	1.93	1.92	1.94	1.7	*2.1*	1.9	1.7	3.46				2.36	2.24	2.16	−.12	2.50	1.80	48.61	48.33
9	51.2		50.0	49.5	50.51	50.28	50.31	50.00	49.97	49.66	51.3	51.3	49.7	49.1	50.00				47.72	46.73	49.24	*49.46*	47.12	45.46	49.66	49.31
	2.7		1.7	2.1	2.01	2.28	2.01	2.36	1.91	2.02	2.0	*1.7*	2.0	2.1					1.41	3.15	.80	1.50	1.46	3.58	50.71	50.30
10	53.9		51.7	51.6	52.52	*52.56*	52.32	52.36	51.88	51.68	53.3	53.0	51.7	51.2					49.13	49.88	50.04	*50.96*	48.58	49.04	51.54	51.21
	1.2		1.6	2.1	1.77	2.12	1.77	1.66	1.74	2.11	1.9	*1.5*	1.5	1.9					2.64	1.45	3.50	.46	2.08	1.72	52.38	52.24
11	55.1		53.3	*53.7*	54.29	*54.68*	54.09	54.02	53.62	*53.79*	55.2	54.5	53.2	53.1	57.01				51.77	51.33	53.54	51.42	50.66	50.76	53.20	*53.29*
	1.6		1.7	2.2	1.85	2.41	2.05	2.79	1.79	2.32	1.9	*3.5*	1.9	2.7					1.86	2.10	.84	6.32	1.96	1.82	54.02	*54.45*
12	56.7		55.0	*55.9*	56.14	*57.09*	56.14	*56.81*	55.41	*56.11*	57.1	58.0	55.1	*55.8*		52.99			53.63	53.43	54.38	*57.74*	52.62	52.58	54.94	*55.64*
	4.3		1.9	2.0	2.21	2.59	2.09	2.21	2.07	2.43	1.6	*1.2*	1.7	2.1		7.17			2.27	2.91	.42	.38	1.22	1.50	55.87	*56.82*
13	61.0		56.9	*57.9*	58.35	*59.68*	58.23	*59.08*	57.48	*58.54*	58.7	59.2	56.8	*57.9*		60.16			55.90	56.34	54.80	*58.18*	53.84	*54.08*	57.30	*58.15*
	1.3				2.91	1.97	2.64	1.56	2.52	1.89	3.0	*2.5*	2.3	1.3					1.15	2.52	4.42	3.26	5.40	4.30	58.70	*59.47*
14	62.3				61.26	*61.65*	60.87	60.58	60.00	*60.43*	61.7	61.7	59.1	*59.8*	57.71				57.06	*58.86*	59.22	*61.38*	48.24	*58.38*	59.82	*60.49*
	3.0				2.99	.44	2.91	1.19	2.88	1.18	3.0	*1.6*	2.7	2.4					.51	1.58	−1.94	−.18	5.18		60.93	*61.58*
15	65.3				64.25	62.09	63.78	61.77	62.88	61.61	64.7	63.3	61.8	61.6					57.56	*60.44*	57.28	*61.20*	53.42		62.24	61.75
	1.2				1.42	.78	1.57	.12	2.04	.61	2.0	*0*	2.5	.8					6.03	−1.47	1.76				63.55	61.99
16	66.5				65.67	62.87	65.35	61.89	64.92	62.22	66.7	63.3	64.3	62.4					63.59	58.97	59.04				64.59	62.33
	.6					.00	1.01	.75	1.58	.43	1.5	*1.2*	1.7	.6					−2.41						65.62	62.68
17	67.1					62.87	66.36	62.64	66.50	62.65	68.2	64.5	66.0	63.0					61.18						66.10	62.71
	.2								.85		.4	*.1*	1.1	.1						2.21					66.56	62.74
18	67.3								67.35		68.6	64.6	67.1	63.1	66.12	62.29				61.18					67.42	62.77
	.7										.4	*0*			4.56										68.28	62.80
19	67.4										69.0	64.6			69.68											

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20	.1														−.90									
	67.6														68.78	59.84								
21	.1																							
	67.7																							
22																59.21								
23																−.4								
															69.84	58.78								
25															64.96									
27															64.41	62.40								
28															−1.26	−.31								
															63.15	62.09								
29																−.95								
																61.14								
30																−.43								
															62.25	60.71								
31																−2.36								
																58.35								
33																62.91								
34															63.08									
35															.62									
															63.70	63.82								
40															66.93	58.22								
41																3.04								
																61.26								
42																−3.23								
																58.03								
43															66.26									
44															−3.97									
															62.29	56.26								
45															2.32									
															64.61									
46															−2.32									
															62.29	53.07								

[1] See Boas, ninth reference.
[2] The ages for this school are one-half year greater than for the others.
[3] See Gilbert, first reference.
[4] See Boas, thirteenth reference.

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TABLE 33.—*Height and increments, in inches, according to various measurements*—Continued.

Ages, in years.	90		91		92		93		94		95		96		97		98		99		100	
	Amherst Col., 1900, America (4,880).[1]		Hastings, 1902, America (5,476).[2]		Hastings, 1902, Nebraska (7,700 M., 7,069 F.).[3]		Rietz, 1903, Berlin, Gymnasium (1,740 M., 533 F.).		Rietz, 1903, Berlin, Gemeideschulen (1,496 M., 1,365 F.).		Ranke, 1905, Germany, (1,457 M., 1,000 F.).		Hoesch Ernst, 1906, German, Volksschulen (175 M., 175 F.).[4]		Bobbitt, 1909, Philippine Islands (1,180 M., 438 F.).		Bobbitt, 1909, China (60).		Baldwin, Chicago, 1910 (400 M., 500 F.).		Misawa, 1909, Japan.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0											19.61	19.10										
											4.99	5.19										
1											24.60	24.29										
											5.70	5.42										
2											30.30	29.71										
											4.09	3.77										
3											34.39	33.48										
											2.08	2.68										
4											36.47	36.16										
											2.67	1.96										
5			41.60		41.57	41.41					39.14	38.12							46.32	43.24		
			1.95		1.92	1.78					2.48	4.03							47.64	44.88		
6			43.55		43.49	43.19	46.49	*46.77*	44.63	43.98	41.62	*42.15*			43.09				47.65	46.46		
			2.00		1.98	1.98	1.46	1.45	1.43	2.10	2.28	2.49			1.59				47.64	47.64		
7			45.55		45.47	45.17	47.95	*48.22*	46.06	*46.08*	43.90	*44.64*			44.68	*45.08*			49.21	48.83	41.92	41.46
			2.20		2.20	2.05	2.08	1.77	1.65	1.75	2.04	1.14			1.38	1.18			50.39	49.21	1.78	1.65
8			47.75		47.67	47.22	50.03	49.99	47.71	*47.83*	45.94	45.78	49.63	48.71	46.06	*46.26*			51.57	50.00	43.70	43.11
			1.80		1.79	2.36	1.53	1.49	1.35	1.30	1.81	2.28	0.00	.50	1.58	2.24			51.96	51.18	1.82	1.81
9			49.55		49.46	49.58	51.56	51.48	49.06	*49.13*	47.75	*48.06*	49.63	49.21	47.64	*48.50*	48.70		52.76	52.37	45.52	44.92
			2.00		2.00	2.02	1.77	1.85	2.37	2.20	2.24	1.97	2.02	3.40	1.45	1.62	1.50		53.94	53.45	1.72	1.73
10			51.55		51.46	51.60	53.33	53.33	51.43	51.33	49.99	*50.03*	51.65	*52.61*	49.09	*50.12*	50.20		54.72	54.34	47.24	46.65
			1.55		1.55	1.52	1.49	2.16	1.74	2.00	1.41	1.77	1.31	1.37	2.05	.40	.43		55.12	55.51	1.88	1.86
11			53.10		53.01	53.12	54.82	*55.49*	53.17	*53.33*	51.40	*51.80*	52.96	*53.98*	51.14	50.52	50.63		55.91	*56.69*	49.12	48.51
			2.15		2.12	2.70	2.32	2.60	1.66	2.00	1.81	2.00	1.68	1.13	2.42	2.55	.21		57.09	*57.49*	1.55	2.00
12			55.25		55.13	*55.82*	57.14	*58.09*	54.83	55.33	53.21	*53.80*	54.64	*55.11*	53.56	53.07	50.84		57.41	*58.66*	50.67	50.51
			1.85		1.49	2.55	2.05	1.69	2.04	2.87	1.69	1.65	1.94	3.31	1.68	3.03	2.87		59.06	*60.24*	1.86	1.98
13			57.10		56.62	*58.37*	59.10	*59.78*	56.87	*58.20*	54.90	*55.45*	56.58	*58.43*	55.24	*56.10*	53.71		59.85	*60.02*	52.53	52.49
			2.35		2.73	1.83	2.12	1.76	.74	.94	1.90	2.01	.63	.75	2.67	1.18	3.06		61.02	*61.81*	1.65	1.73
14			59.45		59.35	*60.80*	61.21	*61.54*	57.61	*59.14*	56.80	*57.46*	57.21	*59.17*	57.91	57.28	56.77		62.60	62.21	54.18	*54.22*
			2.80		2.81	1 42	2 51	.55			1.99	.51			2.80	.99	5.63		64.57	62.60	1.77	1.53
15			62.25		62.16	61.82	63.82	62.09			58.79	57.97			60.71	58.27	62.40		64.96	62.60	55.05	55.75
			2.21		2.18	.44	1.34								1.57	.31			65.78	62.99	1.57	.83
16	67.4		64.45		64.34	62.26	65.16								62.28	58.58			65.78	63.30	57.52	56.58

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17	.5				2.46	.58	1.26								.91	.48			66.32	62.99		
	67.9				66.80	62.64	66.42								63.19	59.06			66.32	63.78		
18	.3				.43	.14	.78								.16	—.40			66.32	64.17		
	68.2				67.23	62.78	67.20								63.35	58.66						
19	.0				.20	.13	—.16								.43	.22						
	68.2				67.52	62.91	67.04								63.78	58.88						
20	—.1				.16	.29									.08	—.48						
	68.1				67.68	63.20									63.86	58.50						
21	.0														—.47							
	68.1														63.39							
22	.1																					
	68.2																					
23	—.1																					
	68.1																					
24	.1																					
	68.2																					
25	.0																					
	68.2																					
26	.7																					
	68.9																					

[1] See Hitchcock, twelfth reference.
[2] See Hastings, fourth reference.
[3] See Hastings, first reference.
[4] One-half year should be added to the ages given for the measurements in this column.

TABLE 33.—*Height and increments in inches, according to various measurements*—Continued.

Ages, in years.	101		102	103	104		105		106		107		108		109		110		111		112	
	Misawa, 1901, Japan.		Wisawa, 1909, Japan.	Weissenberg, 1911, German.					Goddard, 1912, Vineland, N. J. (5,656 M., 4,723 F.).						Baldwin, 1913, Chicago and New York (100 M., 100 F.).		Baldwin, 1913, American, F.W. Parker School, Chicago (1 M., 1 F.).		Baldwin, 1913, American, Friends' School, Washington, (1 M., 1 F.).		Baldwin, 1913, Chicago (501 M., 706 F.).	
				Poor.	Middle.		Wealthy.		Moron.		Imbecile.		Idiot.									
	M.	F.	M.	M.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0	19.30	19.20																				
1	9.64	9.50																				
	28.94	28.70																				
2	2.36	2.40																				
	31.30	31.10																				
3	2.32	2.33																				
	33.62	33.43																				
4	2.58	2.42																				
	36.20	35.85																				
5	2.17	2.14							40.3	41.4	40.4	38.5	39.7	36.3	40.22	40.01						
	38.37	37.99							4.2	1.6	3.6	5.0	2.3	3.7	43.00	42.90						
6	2.10	2.32							44.5	43.0	44.0	43.5	42.0	39.0	45.41	45.17	47.6				45.7	45.1
	40.47	40.31							3.2	4.5	1.1	2.3	3.1	5.0								
6½															46.66	46.31	49.6				46.9	46.2
7	2.15	1.90							47.7	47.5	45.1	45.8	45.1	44.0	47.95	47.24					47.5	47.6
	42.62	42.21							.5	1.0	2.4	1.5	1.7	1.5								
7½															48.31	48.26					49.2	48.4
8	2.18	1.89							48.2	48.5	47.5	47.3	46.8	45.5	49.48	49.35	51.1	47.83			50.3	49.2
	44.80	44.10							2.5	2.4	2.3	1.7	2.5	.9								
8½															49.56	50.39	52.2	49.21			51.5	49.7
9	1.78	1.65							50.7	50.9	49.8	49.0	49.3	46.4	51.36	51.10	53.4	50.00		49.33	51.6	51.5
	46.58	45.75							.9	.7	1.2	1.3	−.9	1.9						50.31		
9½															52.19	52.00	54.3				52.7	51.5
10	1.73	1.65		48.88	49.08		49.80		51.6	51.6	51.0	50.3	48.4	48.3	53.66	53.33	54.8	50.98	52.57	51.36	53.5	53.0
	48.31	47.40		.66	1.66		1.94		2.1	1.2	2.4	.8	2.8	1.5								
10½															54.75	54.05		51.96	55.23	52.52	54.7	54.2
11	1.88	2.16		49.54	50.74		51.74		53.7	52.8	53.4	51.1	51.2	49.8	55.34	55.16	57.3	53.43	54.26	53.68	54.7	55.1
	50.00	49.56		1.94	2.60		2.50		2.1	2.9	1.3	4.0	.5	.9								
11½															56.71	56.92	58.7	54.72	54.84	54.92	55.9	56.6
12	1.46	2.52		51.48	53.44		54.24		55.8	55.7	54.7	53.1	51.7	50.7	57.17	57.70	60.0	55.66	55.70	56.80	57.1	57.4
	51.46	52.08		.98	.86		1.02		1.6	3.1	2.0	2.1	3.6	4.3								
12½															57.75	59.35	61.3		57.09	57.76	57.9	58.1

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13	1.77	2.64	57.87	52.46	54.20		55.26		57.4	58.8	56.7	57.2	55.3	55.0	58.23	59.48	61.3	58.73	58.07	58.62	59.0	60.2
	53.23	54.72	2.03						2.2	.4	2.2	.2	.7	.3								
13½															59.48	60.59	65.6	59.96	60.11	59.74	59.8	60.9
14	2.48	1.66	59.90						59.6	59.2	58.9	57.4	56.0	55.3	61.02	61.33	66.8	61.98	62.49	60.60	60.9	61.8
	55.71	56.38	1.79						2.6	1.5	1.8	1.2	2.2	1.2								
14½															62.17	62.48	68.6	62.48	63.98	60.75	62.6	62.0
15	1.87	.58	61.69						62.2	60.7	60.7	58.6	58.2	56.5	63.71	62.60	68.6	62.83	65.31	61.78	64.5	62.6
	57.58	56.96	.91						1.4	.5	1.7	.7	.8	.8								
15½															65.12	63.26	68.6	63.54	65.87	61.80	64.7	62.6
16			62.60						63.6	61.2	62.4	59.3	59.0	57.3	65.68	63.00		63.58		61.80	65.7	62.9
			.39						1.2	0.0	.7	−.2	2.6	1.3								
16½															67.36	63.70		63.62		61.80	65.5	63.0
17			62.99						64.8	61.2	63.1	59.1	61.6	58.6	67.46	63.42		63.62			66.5	62.9
									.4	−.4	1.0	.9	.2	−1.5								
17½															67.45	63.90					66.5	63.7
18									65.2	60.8	64.1	60.0	61.8	57.1	67.48	64.00		64.11			66.5	63.8
									3.2	.5	.1	−1.1	−.3	1.6								
19									68.4	61.3	64.2	58.9	61.5	58.7								
									−2.4	.3	.9	2.4	1.8	−.4								
20									66.0	61.6	65.1	61.3	63.3	58.3								
									−.8	.4	0.0	−.8	.4	−.4								
21									65.2	62.0	65.1	60.5	63.7	57.9								
									.9	−.1	−.4	.1	−.4	1.7								
22									66.1	61.9	64.7	60.6	63.3	59.6								
									−.8	.7	0.0	−.6	−.2	.1								
23									65.3	62.6	64.7	60.0	63.1	59.7								
									.9	−.1	−.2	.5	.2	−.7								
24									66.2	62.5	64.5	60.5	63.3	59.0								
									−1.3	−1.2	−.2	−.4	−.8	.4								
25									64.9	61.3	64.3	60.1	62.5	59.4								
									.5	−.5	.9	1.2	1.8	−1.7								
26									65.4	60.8	65.2	61.3	64.3	57.7								
									1.6	−.2	−.3	−1.3	−1.0	2.3								
27									67.0	60.6	64.9	60.0	63.3	60.0								
									−1.9	1.2	−.5	.9	.6	−3.0								
28									65.1	61.8	64.4	60.9	63.9	57.0								
									.9	.2	−.9	−1.4	.5	1.3								
29									66.0	62.0	63.5	59.5	64.4	58.3								
									−1.7	.1	.3	1.9	−.7	−.5								
30									64.3	62.1	63.8	61.4	63.7	57.8								
									1.5	−.2	1.0	−1.6	−.1	1.5								
31									65.8	61.9	64.8	59.8	63.6	59.3								

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TABLE 34.—*Weight and increments, in pounds, according to various measurements.*[1]

Ages in years.	112		113		114		115		116		117		118		119		120		121		122	
	Boyd, 1861, London.		Quetelet, 1836, Belgium, selected (10 M., 10 F.).		Bowditch, 1875, Boston (13,691 M., 10,904 F.).		Roberts, 1878, England. Artisan class (13,931).		Favored classes (7,709).		All classes.		Towns (2,568).		Soldiers, policemen, etc. (29,531).		Feeble-minded (829).		Town boys (7,855).		Bowditch, 1878, foreign.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0	5.06	4.25	6.8	6.6							7.1	6.9										
1	1 to 2 yrs.		15.0	12.4																		
			21.8	19.0																		
2	14.31	13.13	24.3	24.3							32.5											
			3.3	3.0							1.5											
3	3 to 4 yrs.		27.6	27.3							34.0	31.9										
			3.3	3.3							3.3	3.6										
4	20.00	18.47	30.9	30.6			41.2				37.3	35.5					35.0					
			4.2	3.1			8.8				2.6	4.1					4.0					
5	5 to 6 yrs.		35.1	33.7	41.1	39.7	50.0				39.9	39.6			37.31		39.0					
			4.1	3.1	4.1	3.6	4.2				4.5	2.8			3.36		4.0					
6	25.50	24.56	39.2	36.8	45.2	43.3	54.2				44.4	42.4			40.67		43.0					
			4.2	2.4	3.9	4.2	2.7				5.3	4.3			4.66		3.5					
7			43.4	39.2	49.1	47.5	56.9				49.7	46.7	54.83		45.33		46.5					
			4.2	2.7	4.8	4.5	2.1				5.2	5.5	5.17		3.45		4.0					
8			47.6	41.9	53.9	52.0	59.0				54.9	52.2	60.00		48.78		50.5					
			4.2	4.4	5.3	5.1	3.6				5.5	3.3	2.02		4.78		2.0					
9	7 to 13 yrs.		51.8	46.3	59.2	57.1	62.6				60.4	55.5	62.02		53.56		52.5					
			3.8	4.6	6.1	5.3	3.7				7.1	6.5	4.32		2.92		6.5					
10	42.31	38.31	55.6	50.9	65.3	62.4	66.3		67.4		67.5	62.0	66.34		56.48		59.0				70.6	
			3.9	5.3	4.9	6.4	3.2		5.5		4.5	6.1	3.32		2.71		5.5				4.7	
11			59.5	56.2	70.2	68.8	69.5		72.9		72.0	68.1	69.66		59.19		64.5		66.31		75.3	
			4.4	7.7	6.7	9.5	4.2		7.4		4.7	8.3	5.46		3.83		6.0		3.15		10.6	
12			63.9	63.9	76.9	78.3	73.7		80.3		76.7	76.4	75.12		63.02		70.5		69.46		85.9	
			9.1	7.8	7.9	9.4	4.6		8.3		5.9	10.6	6.82		7.80		6.5		4.22		8.5	
13			73.0	71.7	84.8	88.7	78.3		88.6		82.6	87.0	81.94		70.82		77.0		73.68		94.4	
			8.8	8.3	10.1	9.7	6.3		10.6		9.4	9.7	10.30		10.75		8.5		4.59		5.5	
14			81.8	80.0	94.9	98.4	84.6		99.2		92.0	96.7	92.24		80.57		85.5		78.27		99.9	
			9.0	8.2	12.2	7.7	12.2		11.2		10.7	8.1	13.06		15.34		9.0		3.34		16.7	
15	14 to 19 yrs.		90.8	88.2	107.1	106.1	96.8		110.4		102.7	104.8	105.30		95.91		94.5		81.61		116.6	
			9.2	7.7	13.9	5.9	11.9		17.9		10.3	7.9	13.45		14.89		8.5		15.18		9.2	
16	99.00	93.80	100.1	95.9	121.0	112.0	108.7		128.3		119.0	112.7	118.75		110.80		103.0		96.79		125.8	

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17			9.5	7.3	6.5	3.5	7.7		12.7		11.9	2.2	8.75		13.21		7.0		11.91		9.4									
			109.6	103.2	127.5	115.5	116.4		141.0		130.9	114.9	127.50		124.01		110.0		108.70		135.2									
18			9.2	6.6	5.1	−.3	6.9		5.0		6.5	2.8	12.50		5.42		6.0		7.70		3.0									
			118.8	109.8	132.6	115.2	123.3		146.0		137.4	117.7	140.00		129.43		116.0		116.40		138.2									
19			8.2	5.1			5.1		2.3		2.2	6.0	1.16		4.08		4.5		6.90											
			127.0	114.9			128.4		148.3		139.6	123.7	141.16		133.51		120.5		123.30											
20			4.2	2.4			2.2		3.7		3.7	−.5			2.98		1.0		5.10											
			131.2	117.3			130.6		152.0		143.3	123.2			136.49		121.5		128.40											
21									.3		1.9	−2.0			1.43		.5		2.20											
									152.3		145.2	121.2			137.92		122.0		130.60											
22									2.4		1.7	3.0			1.27		.5													
									154.7		146.9	124.2			139.19		122.5													
23											.9	2.2																		
	20 to 29 yrs.										147.8	126.4																		
24											.2	−5.8																		
	90.91	86.81									148.0	120.6																		
25											1.2																			
											149.2																			
26											2.5																			
											151.7																			
27											.6																			
											152.3				141.10		123.0													
28											1.6																			
											153.9																			
29											.3																			
											154.2																			
30											5.6																			
											159.8																			
33		(2)																												
34																														
35											164.3																			
36													162.10		138.27															
40											163.1																			
42																														
43																														
46											166.1																			
47																														
48											158.1																			
49																														
50											182.1																			
51																														
52																														
53																														

[1] The references for weight are the same as for height except as indicated.

[2] According to Boyd, in 1861, London, weights were, for ages 30 to 39 years, males 98.22 pounds, females, 87; 40 to 50 years, males 102, females 84.58; 50 to 60 years, males 102.06, females 86; 60 to 70 years, males 103.81, females 86.90; 70 to 80 years, males 106.81, females 80.25; 80 to 90 years, males 99, females 79.03.

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TABLE 34.—*Weight and increments, in pounds, according to various measurements*—Continued.

Ages in years.	122		124		125		126		127		128		129		130		131		132		133	
	British Anthrop. Com., 1880, England, public schools, military and naval colleges (29,405).		Peckham, 1881, Milwaukee (4,773 M., 4,891 F.).		Hertel, 1882, Denmark (17,134 M., 11,250 F.).		Peckham, 1882, America, children (228).		British, report, 1883, English (first 4 years from Holt).		Shuttleworth, 1884, England. General population.		Shuttleworth, 1884, England. Idiots and imbeciles (1,209).		Daffner, 1885, Germany (700).		Greenwood, 1886, American, white (743).		Greenwood, 1886, American, negro (723).		Michailoff, 1887, Russia, Dorfschüler.[1]	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0	.....	.....	.....	.....	.....	.....	.....	.....	7.5	7.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....	13.0	12.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	.....	.....	.....	.....	.....	.....	.....	.....	20.5	19.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	.....	.....	.....	.....	.....	.....	24.39	23.11	6.0	5.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	.....	.....	.....	.....	.....	.....	5.99	6.19	26.5	25.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	.....	.....	38.8	36.3	.....	.....	30.38	29.30	4.7	4.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	.....	.....	2.3	3.7	.....	.....	4.62	3.87	31.2	30.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	.....	.....	41.1	40.0	.....	.....	35.00	33.17	3.8	4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	.....	.....	3.7	3.1	.....	.....	.....	.....	35.0	34.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	.....	.....	44.8	43.1	46.3	44.1	.....	.....	6.2	5.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	.....	.....	4.3	3.9	3.3	3.3	.....	.....	40.0	39.2	.....	39.2	39.0	37.5	.....	.....	.....	.....	.....	.....	.....	.....
11	.....	.....	49.1	47.0	49.6	47.4	.....	.....	4.4	2.5	.....	2.5	4.0	3.5	.....	.....	.....	.....	.....	.....	.....	.....
12	.....	.....	4.7	3.9	3.3	4.4	.....	.....	44.4	41.7	.....	41.7	43.0	41.0	.....	.....	.....	.....	.....	.....	.....	.....
13	.....	.....	53.8	50.9	52.9	51.8	.....	.....	5.3	5.8	.....	5.8	3.5	4.0	.....	.....	.....	.....	.....	.....	.....	.....
14	.....	.....	5.7	5.5	4.4	4.4	.....	.....	49.7	47.5	.....	47.5	46.5	45.0	.....	.....	.....	.....	.....	.....	.....	.....
15	.....	.....	59.5	56.4	57.3	56.2	.....	.....	5.2	4.6	.....	4.6	4.0	4.0	.....	.....	.....	.....	.....	.....	.....	.....
16	.....	.....	5.9	6.0	5.5	5.5	.....	.....	54.9	52.1	55.0	52.1	50.5	49.0	.....	.....	.....	.....	.....	.....	48.94	46.96
17	73.97	.....	65.4	62.4	62.8	61.7	.....	.....	5.5	3.4	5.0	3.4	5.0	4.0	.....	.....	.....	.....	.....	.....	2.65	4.19
18	4.75	.....	5.5	6.4	5.5	5.5	.....	.....	60.4	55.5	60.0	55.5	55.5	53.0	.....	.....	.....	.....	.....	.....	51.59	51.15
	78.72	.....	70.9	68.8	68.3	67.2	.....	.....	7.1	6.5	5.0	7.4	3.5	6.0	.....	.....	.....	.....	.....	.....	5.51	3.97
	6.19	.....	5.2	9.0	5.6	7.8	.....	.....	67.5	62.0	65.0	62.9	59.0	59.0	.....	.....	.....	.....	.....	.....	57.10	55.12
	84.91	.....	76.1	77.8	73.9	75.0	.....	.....	4.5	6.0	5.0	5.2	5.5	7.0	.....	.....	.....	.....	.....	.....	5.29	4.62
	6.66	.....	8.8	10.2	6.6	8.8	.....	.....	72.0	68.0	70.0	68.1	64.5	66.0	.....	.....	66.35	63.9	68.7	64.2	62.39	59.74
	91 67	.....	84.9	88.0	80.5	83.8	.....	.....	4.7	8.4	7.5	8.3	6.0	6.0	.....	.....	6.85	6.6	2.8	14.8	3.30	3.97
	10.58	.....	10.9	9.6	8.8	8.8	.....	.....	76.7	76.4	77.5	76.4	70.5	72.0	.....	.....	73.20	70.5	71.5	79.0	65.69	63.71
	102 15	.....	95 8	97.6	89.3	92.6	.....	.....	5.9	10.8	7.5	10.8	6.5	8.0	.....	.....	8.05	7.7	16.0	11.0	3.97	6.61
	12 17	.....	13 2	8.3	11 8	10 0	.....	.....	82.6	87.2	85.0	87.2	77.0	80.0	76.15	.....	81.25	78.2	87.5	90.0	69.66	70.58
	114 42		108.0	105.9	102.6	102.6	.....	.....	9.4	9.5	7.5	9.5	6.5	8.0	7.77	.....	5.95	11.9	4.9	9.0	.....	.....
							.....	.....	92.0	96.7	92.5	96.7	85.5	88.0	83.92	.....	87.2	90.1	92.4	99.0	.....	.....
							.....	.....	10.7	9.3	10.0	9.6	9.0	7.0	13.28	.....	5.0	11.1	5.9	2.0	.....	.....
							.....	.....	102.7	106.0	102.5	106.3	94.5	96.0	98.20	.....	92.2	101.9	98.3	101.0	.....	.....

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16	15.16		13.1	4.7	14.2	9.8			16.3	6.1	15.0	6.8	8.5	7.0	4.18		15.1	6.0	11.5	5.7		
	129.48		122.1	110.6	116.8	112.4			119.0	113.1	117.5	113.1	103.0	102.0	100.38		107.3	107.2	109.8	107.3		
17	12.18		8.3	2.7	10.0				11.0	2.9	17.5	2.4	7.0	4.0	6.50							
	141.66		130.4	113.3	126.8				130.0	115.0	135.0	115.5	110.0	106.0	106.88							
18	4.78		7.4	−.8	7.7				7.4	5.1	7.5	5.6	6.0	4.0	17.58							
	146.44		137.8	112.5	134.5				137.4	121.1	142.5	121.1	116.0	108.0	124.46							
19	2.02								2.2	2.7	1.2	2.7	4.5	4.5	−1.99							
	148.46								139.6	123.8	143.7	123.8	120.5	108.5	122.47							
20	3.90								3.7	−.4	1.3	−.4	1.0	0.0	3.11							
	152.36								143.3	123.4	145.0	123.4	121.5	108.5	125.58							
21	.36								1.9	−1.6	1.2	−1.6	.5		.54							
	152.72								145.2	121.8	146.2	121.8	122.0		126.12							
22	.03										1.3	1.6	.5		19.88							
	152.75										147.5	123.4	122.5		146.00							
23											1.2	.7										
											148.7	124.1										
24											1.3	−3.3										
											150.0	120.8										
28											151.2	120.0	123.0	109.0								
36											152.5	120.8										
46											155.0	118.6										
48											157.5	104.0										

[1] One-half year should be added to the ages given for the measurements in this column.

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TABLE 34.—*Weight and increments, in pounds, according to various measurements*—Continued.

Ages in years.	134		135		136		137		138		139		140		141		142		143		144	
	Michailoff, 1887, Russia, stadtschüler.[1]		Cordeiro, 1887, U. S. Navy (4,812).		Suligowski, 1887, Radom (1,133).[1]		Stevenson, 1888.		Geissler, 1888, Gohlis (1,386 M., 1,420 F.).[2]		Erisman, 1888, Moscow (2,453 M., 1,495 F.).		Key, 1889, Sweden (15,000 M., 3,000 F.).		Hrdlička, 1899, Italian children.		Hrdlička, 1899, whites and blacks.		Key, 1889, Sweden, mittelschulen.		Key, 1889, Sweden, volksschulen.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
5	.....	.....	.....	.....	.....	.....	40.49	39.63	.....	.....	.....	.....	.....	.....	.....	.....	33.00	34.00	.....	.....	.....	.....
6	.....	.....	.....	.....	.....	.....	4.30	3.21	.....	.....	.....	.....	.....	.....	.....	.....	7.00	6.00	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....	44.79	42.84	47.2	45.2	44.1	42.8	45.2	.....	38.80	39.00	40.00	40.00	45.19	45.63	48.06	45.41
7	.....	.....	.....	.....	.....	.....	4.60	4.24	3.3	4.2	4.4	4.2	5.1	.....	5.90	2.30	5.00	2.00	5.07	1.99	1.54	3.53
	.....	.....	.....	.....	.....	.....	49.39	47.08	50.5	49.4	48.5	47.0	50.3	47.6	44.70	41.30	45.00	42.00	50.26	47.62	49.60	48.94
8	.....	.....	.....	.....	.....	.....	5.02	5.04	4.0	4.6	4.6	1.5	7.5	7.5	1.50	1.70	2.00	3.00	7.50	7.50	7.28	2.21
	48.50	46.96	.....	.....	55.3	.....	54.41	52.12	54.5	54.0	53.1	48.5	57.8	55.1	46.20	43.00	47.00	45.00	57.76	55.12	56.88	51.15
9	4.63	1.54	.....	.....	6.5	.....	5.41	4.16	4.4	3.8	8.0	7.9	6.8	4.2	6.80	8.00	6.00	7.00	6.83	4.18	1.10	5.07
	53.13	48.50	.....	.....	61.8	.....	59.82	56.28	58.9	57.8	61.1	56.4	64.6	59.3	53.00	51.00	53.00	52.00	64.59	59.30	57.98	56.22
10	7.93	7.94	.....	.....	6.2	.....	6.58	5.89	4.6	5.0	6.1	4.0	2.2	5.5	3.30	6.50	4.00	8.00	0.0	5.51	5.29	5.51
	61.06	56.44	.....	.....	68.0	.....	66.40	62.17	63.5	62.8	67.2	60.4	66.8	64.8	56.30	*57.50*	57.00	*60.00*	64.59	*64.81*	63.27	61.73
11	6.18	3.74	.....	.....	5.4	.....	4.69	6.30	7.0	6.9	6.2	6.4	4.2	5.5	5.50	7.80	7.00	5.00	6.40	5.51	10.80	5.51
	67.24	60.18	.....	.....	73.4	.....	71.09	68.47	70.5	69.7	73.4	66.8	71.0	70.3	61.80	*65.30*	64.00	*65.00*	70.99	70.32	74.07	67.24
12	6.17	6.62	.....	.....	8.7	.....	5.72	8.88	5.8	8.1	9.5	13.7	5.1	8.8	7.10	6.80	6.00	7.00	5.07	8.82	−1.32	7.49
	73.41	66.80	.....	.....	82.1	.....	76.81	*77.35*	76.3	*77.8*	82.9	80.5	76.1	*79.1*	68.90	*72.10*	70.00	*72.00*	76.06	*79.14*	72.75	*74.73*
13	9.48	13.67	.....	.....	9.8	.....	6.91	10.47	3.1	7.3	8.6	8.8	6.8	8.2	3.10	6.90	11.00	12.00	6.83	8.16	6.62	8.38
	82.89	80.47	.....	.....	91.9	.....	83.72	*87.82*	79.4	*85.1*	91.5	89.3	82.9	*87.3*	72.00	*79.00*	81.00	*84.00*	82.89	*87.30*	79.37	*83.11*
14	8.60	8.81	.....	.....	11.7	.....	9.74	9.74	.....	.....	11.2	5.1	10.4	11.5	13.00	23.00	3.00	13.00	10.36	11.46	2.20	7.94
	91.49	89.28	86.11	.....	103.6	.....	93.46	*97.56*	.....	.....	102.7	94.4	93.3	*98.3*	85.00	*102.00*	84.00	*97.00*	93.25	*98.76*	81.57	*91.05*
15	11.24	4.63	10.23	.....	8.9	.....	11.44	7.88	.....	.....	14.1	5.5	9.9	9.0	−9.00	.....	1.00	15.00	22.05	9.04	16.09	10.36
	102.73	93.91	96.34	.....	112.5	.....	104.90	*106.44*	.....	.....	116.8	99.9	103.2	*107.3*	76.00	.....	85.00	*113.00*	115.30	107.80	97.66	*101.41*
16	14.11	.....	13.21	.....	10.9	.....	15.10	6.92	.....	.....	9.8	1.1	12.1	6.0	.....	.....	30.00	2.00	.....	.....	.....	.....
	116.84	.....	109.55	.....	123.4	.....	120.00	112.36	.....	.....	126.6	101.0	115.3	113.8	.....	.....	115.00	114.00	.....	.....	.....	.....
17	.....	.....	10.60	.....	3.4	.....	9.19	2.85	.....	.....	132.5	.....	11.7	6.6	.....	.....	7.00	.....	.....	.....	.....	.....
	.....	.....	120.15	.....	126.8	.....	129.19	115.21	.....	.....	.....	.....	127.0	120.4	.....	.....	122.00	.....	.....	.....	.....	.....
18	.....	.....	.....	.....	.4	.....	5.78	1.22	.....	.....	.....	.....	8.1	3.7	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	127.2	.....	134.97	116.43	.....	.....	.....	.....	135.1	124.1	.....	.....	.....	104.00	.....	.....	.....	.....
19	.....	.....	.....	.....	3.5	.....	.....	.....	.....	.....	.....	.....	4.5	2.5	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	130.7	.....	.....	.....	.....	.....	.....	.....	139.6	126.6	.....	.....	.....	.....	.....	.....	.....	.....
20	.....	.....	.....	.....	6.2	.....	.....	.....	.....	.....	.....	.....	4.1	.6	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	136.9	.....	.....	.....	.....	.....	.....	.....	143.7	127.2	.....	.....	.....	.....	.....	.....	.....	.....
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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Ages in years.	145		146		147		148		149		150		151		152		153		154		155	
	Axel Key, 1889, Sweden, volksschüler.[1]		Simon, 1889, French (223).		Greenwood, 1890, American, white (2,055).		Greenwood, 1890, foreign (385).		Pagliani, 1890, Turin (1,048 M., 968 F.).		Stevenson, 1890, England, nonlaboring.		Stevenson, 1890, England, laboring.		Hasse, 1891, Germany, II Burgerschule.[1]		Hasse, 1891, Germany, I Burgerschule.[1]		Barnes, 1892, Oakland, Cal.		Schmidt, 1892, Saalfeld (4,699 M., (4,807 F.).	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
3									27.3	24.7												
4									2.5	4.2												
5									29.8	28.9												
6									3.7	4.2												
7									33.5	33.1												
8									3.3	3.1									47.6	45.9	41.9	40.1
9	56.88	51.15	44.09						36.8	36.2									2.6	2.2	4.8	4.7
10	1.10	5.07	2.21						6.0	2.8									50.2	48.1	46.7	44.8
11	57.98	56.22	46.30						42.8	39.0									4.0	4.1	4.4	3.7
12	5.29	5.51	12.12						2.8	2.9												
13	63.27	61.73	58.42						45.6	41.9					53.57	52.47	55.56	54.23	54.2	52.2	51.1	48.5
14	10.80	5.51	1.10						3.8	6.4					3.97	4.41	5.94	5.51	5.4	6.4	4.7	5.3
15	74.07	67.24	59.52		67.50	65.92		63.77	58.6	*59.3*	73		70		67.46	*68.54*	69.66	*72.09*	72.0	69.7	65.7	65.0
16	−1.32	7.49	11.03		3.46	.28		6.81	6.0	5.7	7		4		7.94	8.16	8.16	8.38	5.9	9.2	5.3	7.1
17	72.75	*74.73*	70.55		70.96	66.20	76.75	70.58	64.6	*65.0*	80		74		75.40	*76.50*	77.82	*80.47*	77.9	*78.9*	71.0	*73.1*
18	6.62	8.38	2.20		7.32	14.44	.73	16.08	8.2	11.1	8		4		3.30	7.28	2.43	8.15	11.5	1.8	6.2	8.6
19	79.37	*83.11*	72.75		78.28	*80.64*	77.48	*86.66*	72.8	*76.1*	88		78		78.70	*83.78*	80.25	*88.62*	89.4	*90.7*	77.2	*80.7*
20	2.20	7.94	10.02		9.17	11.08	13.98	13.34	7.9	8.8	10		6		6.84	9.25	10.36	9.26	7.6	7.5	2.6	
21	81.57	*91.05*	82.77		87.45	*91.72*	91.46	*100.00*	80.7	*84.9*	98		84		85.54	*93.03*	90.61	*97.88*	97.0	*98.2*	79.8	
			9.82		6.00	8.38	14.65	4.77	11.5	11.7	12		10						11.1	10.7		
			92.59		93.45	*100.10*	106.11	104.77	92.2	*96.6*	110		94						108.1	*108.9*		
			13.23		17.82	11.06	.89	5.39	11.9	4.2	16		12						13.5	.9		
			105.82		111.27	111.16	107.00	*110.16*	104.1	100.8	126		106						121.6	109.8		
					7.73	5.95			12.1	3.9	14		10						10.1	7.9		
					119.00	117.11			116.2	104.7	140		116						131.7	117.7		
					7.60	1.81			2.4	2.4	6		6						6.0	.6		
			112.44		126.60	118.92			118.6	107.1	146		122						137.7	118.3		
					10.23	1.33			2.7		2		6									
					136.83	120.25			121.3		148		128									
											2		4									
											150		132									
											2		4									
			117.94								152		136									

[1] One-half year should be added to the ages given for the measurements in this column.

[2] See Geissler, first reference.

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TABLE 34.—*Weight and increments, in pounds, according to various measurements*—Continued.

Ages in years.	156		157		158		159		160		161		162		163		164		165		166		167	
	Hastings, 1893, American, Amherst College (1,321).		Hastings, 1893, American, Amherst College (2,106).		Hanna, 1893, Oberlin (500 students) half-year measurements.		Hanna, 1893, Oberlin (1,600 students) half-year measurements.		Porter, 1893, St. Louis (16,295 M., 18,059 F.).		Miwa, 1893, Japan (1,250 M., 2,800 F.).		Sack, 1893, Russia, gymnasien.[1]		Kosmowsky, 1894, Russia, ferien-kolonien.[1]		West, 1894, Worcester (3,250).		Porter, 1894, St. Louis (15,325 M., 16,112 F.).		Bever, 1895, American naval cadets (4,537).		Hall, 1895, Pennsylvania (2,434).	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
3											31.0	29.6												
											2.0	3.0												
4											33.0	32.6												
											3.1	1.7												
5											36.1	34.3					42.63	39.36						
											1.8	2.7					3.41	4.34						
6									43.7	41.7	37.9	37.0					46.04	43.70	43.55	41.74				
									4.1	4.2	4.0	2.4					3.33	4.26	4.23	4.17				
7									47.8	45.9	41.9	39.4					49.37	47.96	47.78	45.91				
									4.7	4.6	2.8	3.8					4.27	3.64	6.65	4.54				
8									52.5	50.5	44.7	43.2	52.03		49.82	46.30	53.64	51.50	52.43	50.45				
									5.0	4.8	4.6	4.9	6.83		2.65	2.86	6.17	5.87	5.03	4.85				
9									57.5	55.3	49.3	48.1	58.86		52.47	49.16	59.81	57.37	57.46	55.30			58.4	
									4.9	5.3	3.3	4.3	4.30		4.85	5.29	6.70	6.15	4.99	5.32			7.7	
10									62.4	60.6	52.6	52.4	63.16		57.32	54.45	66.51	63.52	62.45	60.62			66.1	
									5.9	6.0	4.6	5.2	5.51		5.07	4.85	4.49	6.42	5.91	5.86			5.6	
11									68.3	66.6	57.2	*57.6*	68.67		62.39	59.30	71.00	69.94	68.36	66.48			71.7	
									5.6	7.7	4.9	8.6	6.29		5.95	8.16	7.75	9.80	5.53	7.74			8.8	
12									73.9	*74.3*	62.1	*66.2*	74.96		68.34	67.46	78.75	*79.74*	73.89	*74.22*			80.5	
									6.8	10.6	10.0	7.1	7.67		2.21	3.53	7.38	7.92	6.83	10.65			9.2	
13									80.7	*84.9*	72.1	*73.3*	82.63		70.55	*70.99*	86.13	*87.66*	80.72	*84.87*			89.7	
									8.4	8.4	11.3	12.3	14.18		10.14	13.01	2.05	11.44	8.45	8.38			9.9	
14									89.1	*93.3*	83.4	*85.6*	96.81		80.69	*84.00*	98.18	*99.10*	89.17	*93.25*			99.6	
									11.8	9.7	15.8	5.3	11.66				14.02	5.90	12.75	9.70			9.1	
15						87.54		86.8	101.9	*103.0*	99.2	90.9	108.47				112.20	105.00	101.92	*102.95*	107		108.7	
						83.79			11.9	7.9	.9	2.4	9.91				11.40	4.00	11.76	7.85	11		17.0	
16						91.51		89.3	113.8	110.9	100.1	93.3	118.38				123.60	109.00	113.68	110.80	118		125.7	
						99.22		94.6	9.0	5.1	9.4	6.3					9.30	6.00	9.07	5.21	7		8.1	
17	131.82		131.99			96.26		97.7	122.8	116.0	109.5	99.6					132.90	115.00	122.75	116.01	125		133.8	
	1.42		2.08			101.65		100.3		−0.5	8.8	1.2					.30	5.00	.55	−.56	8.4		4.9	
18	133.24		134.07			104.30		104.3		115.5	108.3	100.8					133.20	120.00	123.30	115.45	133.4		138.7	
	2.12		1.77			106.80		106.0		−.4	3.8	−1.3					9.40	−1.70		−.37	6.3		2.0	
19	135.36		135.84			110.28		110.2		115.1	112.1	99.5					142.60	118.30		115.08	139.7		140.7	

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20	2.67		2.29			114.00		112.4		3.7	−.2	1.8						1.50		2.79	1.5		1.9	
	138.11		138.12			116.20		116.1		118.8	111.9	101.3						119.80		118.87	141.2		142.6	
21	1.42		1.88			119.95		117.9			.6										−1.2		2.5	
	139.53		140.00			123.38					112.5										140		145.1	
22	1.32		1.07			125.24		123.0													1.3			
	140.85		141.07					125.6													141.3			
23	−.17		.14																		2.7			
	140.68		141.21			127.67		128.9													144			
24	1.57		1.21			131.86																		
	142.25		142.42			135.61		133.9																
25	2.78		2.70																					
	145.03		145.12																					
26	−.77		−.21																					
	144.26		144.91					141.5																
27	−.35		−.51			142.00																		
	143.91		144.40					144.8																
28	−2.78		−3.69																					
	141.13		140.71			149.28																		
29	1.55		1.97																					
	142.68		142.68																					
30	3.82		3.82																					
	146.50		146.50																					
31						159.20																		
32								156.5																

[1] One-half year should be added to the ages given for the measurements in this column.

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TABLE 34.—*Weight and increments, in pounds, according to various measurements*—Continued.

Ages in years.	168		169		170		171		172		173		174		175		176		177		178		179	
	Gilbert, 1894, New Haven (50 M., 50 F.).		Gilbert, 1897, Iowa (50 M., 50 F.).		Boas, 1897, California (1,903 M., 2,304 F.).		Boas, 1897, (2,109 M., 1,716 F.).		MacDonald,[1] Washington, D. C. (7,953 white M., 8,520 F.).		Vahl, 1884, Denmark.		Smedley, 1900, Chicago (2,788 M., 3,471 F.).		Hastings, 1902 (5,476 M.).		Hastings, 1902, Nebraska (7,700 M., 7,069 F.).		Rietz, 1903, Berlin, gymnasium (1,740 M., 533 F.).		Rietz, 1903, Berlin, gemeidschulen (1,496 M., 1,365 F.).		Hoesch Ernst, 1906, Switzerland.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
3												32.3												
4												3.5												
5												35.8												
												3.7												
									45.2	43.3		39.5			39.29		39.29	38.10						
									2.6	2.4		2.1			3.33		3.32	2.60						
6	46.8	44.3	45.9	41.6	47.7	45.7	45.7	43.8	47.8	45.7		41.6	43.52	41.61	42.62		42.61	40.70	49.50	49.08	44.22	43.12		
	4.4	6.1	5.5	5.8	4.0	3.9	4.0	4.1	3.7	3.7		6.8	45.59	43.93	4.23		4.25	4.84	3.96	3.08	3.30	4.40		
7	51.2	50.4	51.4	47.4	51.7	49.6	49.7	47.0	51.5	49.4		48.4	47.66	46.25	46.85		46.86	45.54	53.46	52.34	47.52	47.52		
	1.3	2.6	3.6	3.6	5.6	6.1	4.4	4.0	4.3	4.3		5.2	49.72	48.57	4.05		4.04	3.23	3.96	5.50	3.74	3.74		
8	52.5	53.0	55.0	51.0	57.3	55.7	54.1	51.9	56.2	53.7		53.6	52.52	50.74	50.90		50.90	48.77	57.42	*57.64*	51.26	51.26		
	7.5	5.8	6.6	7.1	4.4	4.3	5.3	6.1	5.3	4.8		5.4	55.31	52.91	4.25		4.25	6.01	3.74	3.52	5.28	3.06	49.65	48.71
9	60.0	58.8	61.6	58.1	62.2	60.0	59.4	58.0	61.5	58.5		59.0	58.07	55.69	55.15		55.15	54.78	61.16	61.16	56.54	54.34	0	.50
	8.4	3.9	2.1	4.0	6.8	6.8	6.4	6.1	4.7	5.7		5.9	60.83	58.48	6.13		6.12	4.97	9.46	6.16	4.18	6.16	49.65	49.21
10	68.4	62.7	63.7	62.1	69.0	66.8	65.8	64.1	66.2	*64.8*		64.9	63.30	61.29	61.28		61.27	59.75	70.62	67.32	60.72	60.50	2.00	3.40
	2.4	7.3	8.7	7.1	5.8	7.8	5.5	5.9	6.5	9.0		9.1	65.76	64.10	3.61		4.42	4.05	5.06	8.50	5.28	6.16	51.65	*52.61*
11	70.8	70.0	72.4	69.2	74.8	74.3	71.3	70.0	72.7	*73.8*		74.0	68.85	67.61	64.89		65.69	63.80	75.68	75.82	66.00	*66.66*	1.30	1.37
	11.5	14.5	5.8	10.5	6.8	9.9	7.1	11.0	6.7	8.6		6.6	71.92	71.12	7.66		6.86	8.93	13.42	8.80	6.38	9.02	52.95	*53.98*
12	82.3	*84.5*	78.2	*79.7*	81.6	*84.8*	78.4	*81.0*	79.4	*81.8*		80.6	75.30	*75.79*	72.55		72.55	*72.75*	89.10	83.62	72.38	*75.68*	1.69	1.13
	5.7	7.5	11.7	14.4	7.5	10.0	8.5	8.7	8.9	11.2		9.2	78.68	*80.47*	5.77		5.77	10.74	5.72	9.90	7.92	10.78	54.64	*55.11*
13	88.0	*92.0*	90.9	*94.1*	89.1	*94.8*	86.9	*89.7*	88.3	*93.0*		89.8	83.98	*85.94*	78.32		78.32	*83.47*	94.82	91.52	80.30	*86.46*	1.94	3.31
	3.7	6.0	11.1	5.8	16.0	11.6	11.3	10.9	12.6	7.4		11.5	89.27	*97.41*	9.09		9.08	10.95	15.52	9.90	2.20	8.36	56.58	*58.42*
14	91.7	*98.0*	102.0	99.9	105.1	*105.8*	98.2	*100.6*	100.9	100.4		101.3	94.14	*97.50*	87.41		87.40	*94.42*	110.34	101.42	82.50	*94.88*	.63	.75
	18.3	6.0	15.0	11.4	14.4	4.9	15.6	5.6	12.8	4.8		7.3	99.02	*103.60*	15.88		15.89	8.34	2.30	12.32			57.21	*59.17*
15	110.0	104.0	117.0	111.3	119.5	110.7	113.8	106.2	113.7	105.2		108.6	105.82	*106.20*	103.29		103.29	102.76	112.64	*113.74*				
	17.0	9.0	13.0	.3		5.8	8.8	2.5	7.5	4.8		−7.7	112.63	108.79	13.09		13.09	8.08		10.12				
16	127.0	113.0	130.0	111.6		116.5	122.6	108.7	121.2	110.0		100.9	117.39	111.69	116.38		116.38	110.84		123.86				
	3.0	.7	10.1	9.4		.9	10.1	5.9	10.8	1.5			122.15	114.58			8.62	13		6.16				
17	130.0	113.7	140.1	121.0		117.4	132.7	114.6	132.0	111.5			126.53	115.51			125.00	110.97		130.02				

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18			2.5	4.5					.2[1]				130.91	116.44			5.35	−.62		11.66				
			142.6	126.5					132.2				135.14	116.70			130.35	110.35		141.68				
19			2.9	.9									139.36	116.95			5.41	2.80		2.42				
			145.5	126.4													135.76	113.15		144.10				
20																	−1.36	1.84						
																	134.40	114.99						
21																								

[1] See MacDonald, second reference.

TABLE 34.—*Weight and increments, in pounds, according to various measurements*—Continued.

Ages, in years.	180		181		182		183		184		185		186		187	
	Hoesch, Ernst, 1906, Switzerland, Volksschüler (175 M., 175 F.).		Bobbitt, 1909, Philippines (1,180 M., 428 F.).		Bobbitt, 1909, China (60).		Wisawa, 1909, Japan (9,609 M., 7,466 F.).		Wisawa, 1901, Japan (869,014).		Wisawa, 1909, Japan.		Baldwin, 1910, Chicago (460 M., 638 F.).		Weissenberg, 1911, poor.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0							6.69	6.32								
1							13.15	12.42								
							19.84	18.74								
2							3.97	3.07								
							23.81	21.82								
3							3.52	3.53								
							27.33	25.35								
4							2.87	3.08								
							30.20	28.43								
5							3.31	3.53								
							33.51	31.96								
6							2.86	3.31								
			39.69				36.37	35.27					47.0	43.6		
6½													51.0	46.8		
7			1.76				2.87	2.65					49.6	48.2		
			41.45	40.90			39.24	37.92	38.80	36.81						
7½													56.2	49.0		
8			3.31	3.86			2.87	3.30	3.31	4.41			57.2	51.3		
			44.76	44.76			42.11	41.22	42.11	41.22						
8½	54.45	52.47											60.0	55.6		
9			2.21	5.51			4.19	3.97	4.41	2.87			58.6	58.1		
			46.97	*50.27*	54.46		46.30	45.19	46.52	44.09						
9½	55.80	53.80											62.5	59.3		
10			3.75	.89	1.11		4.41	3.97	3.74	4.19			67.2	65.5		
			50.72	*51.16*	55.57		50.71	49.16	50.26	48.28					57.21	
10½	60.18	56.60											68.8	65.8		
11			6.17	7.27	3.97		4.41	4.63	4.86	5.73			71.1	66.8	2.29	
			56.89	*58.43*	59.54		55.12	53.79	55.12	54.01					59.50	
11½	66.14	69.00											72.7	72.5		
12			5.73	7.28	7.40		4.84	7.49	4.40	5.07			76.8	75.3	4.50	
			62.62	*65.71*	67.03		59.96	*61.28*	59.52	59.08					64.00	
12½	71.21	71.43											77.8	*83.0*		
13			5.96	8.16	7.06		5.73	7.94	5.20	7.28			88.0	*94.8*	7.06	
			68.58	*73.87*	74.09		65.69	*69.22*	64.51	*66.56*	83.20	...			71.06	
13½	79.81	85.98											97.0	*98.0*		

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14			8.82 77.40	6.61 80.48	3.31 77.40		8.38 74.07	11.25 80.47	6.84 71.65	7.49 73.85	9.40 92.70		96.1	102.6		
14½	83.11	91.05											102.5	103.5		
15			13.89 91.29	7.72 88.20	22.49 99.89		11.25 85.32	3.75 84.22	5.95 77.60	6.40 80.25	11.70 104.40		107.5	112.0		
15½													108.5	111.9		
16			8.82 100.11	3.53 91.73					6.62 84.22	7.27 87.59	8.08 112.48		112.0	108.8		
16½													114.5	112.5		
17			2.53 102.64	3.97 95.70							2.89 115.37		124.7	113.2		
17½													128.5	116.5		
18			5.18 107.82	1.32 97.02									130.5	115.7		
19			5.08 112.90	−2.65 94.37												
20			.88 113.78	−.66 93.71												
21			−.66 113.12													

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TABLE 34.—*Weight and increments, in pounds, according to various measurements*—Continued.

Ages, in years.	188		189		190		191		192		193		194		195	
	Weissenberg, 1911.				Goddard, 1912, Vineland, N. J.						Baldwin, 1913, Chicago and New York (100 M., 100 F.).		Baldwin, 1913, American, F. W. Parker School, Chicago (1 M., 1 F.).		Baldwin, 1913, American, Friends' School, Washington (1 M., 1 F.).	
	Middle.		Wealthy.		Moron (1,274 M., 1,410 F.).		Imbecile (3,187 M., 2,767 F.).		Idiot (1,436 M., 1,025 F.).							
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
5					39.3	43.3	38.8	38.5	35.2	33.9	38.1	37.9				
					6.4	.6	4.5	4.9	3.9	.7	41.0	40.1				
6					45.7	43.9	43.3	43.4	39.1	34.6	42.9	41.7	50.7			
					−12.2	4.4	4.7	4.2	6.7	8.6	44.8	44.2	52.9			
7					33.5	48.3	48.0	47.6	45.8	43.2	46.9	48.1				
					22.3	7.7	4.0	4.6	5.6	5.0	51.3	50.4				
8					55.8	*56.0*	52.0	*52.2*	51.4	48.2	54.2	54.7	54.5	50.7		
					4.8	2.7	6.3	6.3	4.1	3.6	55.9	*57.1*	56.3	52.9		
9					59.6	58.7	58.3	*58.5*	55.5	51.8	60.4	57.5	59.1	57.5		49.60
					4.2	8.3	.1	6.1	2.3	3.7	62.1	61.5	60.2			54.67
10	56.64		57.76		63.8	*67.0*	63.4	*64.*	57.8	55.5	66.9	64.8	63.9	61.51	62.17	56.22
	3.52		2.38		8.3	5.3	8.8	6.2	6.4	8.8	71.4	68.4		63.00	62.83	59.52
11	60.16		60.14		71.1	*72.3*	72.2	70.8	64.2	*64.3*	73.5	71.7	73.0	68.30	69.00	59.92
	7.63		10.33		8.7	9.6	1.3	7.0	−.3	8.8	75.5	74.9	80.0	72.75	69.44	66.20
12	67.79		70.47		79.8	*81.9*	73.5	*77.8*	63.9	*73.1*	81.0	*82.8*	81.5	79.80	71.65	71.65
	5.71		6.12		8.1	2.8	10.5	10.3	10.8	6.0	84.6	*91.5*	86.5		76.72	*78.48*
13	73.50		76.59		87.9	84.7	84.0	*88.1*	74.7	*79.1*	89.5	*91.8*		94.55	81.57	*89.01*
					8.1	20.1	8.5	11.4	8.8	4.7	87.7	*96.4*	87.5	*107.75*	91.71	*91.93*
14					96.0	*104.8*	92.5	*99.5*	83.5	*85.8*	94.9	*102.3*	101.5	*113.75*	100.31	97.00
					11.7	8.7	10.3	4.7	3.9	9.9	98.9	105.8	109.5	*106.50*	108.25	100.53
15					107.7	*113.5*	102.8	*104.2*	87.4	*93.7*	104.9	*110.5*	121.0	*113.75*	113.98	102.96
					9.1	−5.6	6.4	3.5	11.2	1.3	115.9	115.3	136.0	132.25	119.27	108.03
16					116.8	107.9	109.2	107.7	98.6	95.0	118.9	113.6		136.25		111.77
					12.5	11.6	6.5	4.1	9.9	7.3	127.1	116.9		140.00		110.23
17					129.3	119.5	115.7	111.8	108.5	102.3	128.5	117.9		148.00		
					2.1	−4.1	8.5	.0	.6	−2.0	127.0	119.0				
18					131.4	115.4	124.2	111.8	109.1	100.3	129.0	117.0		150.05		
					6.2	6.0	−1.1	.7	.3	7.3						
19					137.6	121.4	123.1	112.5	109.4	107.6						
					.8	−2.1	6.4	4.6	12.6	−3.8						
20					138.4	119.3	129.5	117.1	122.0	103.8						
					.6	2.6	2.3	−4.1	2.0	8.1						
21					139.0	121.9	131.8	113.0	124.0	111.9						

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22.	......	......	......	......	−2.2	.6	−2.0	2.0	−7.1	−2.6	......	......	......	......	......	......
	......	......	......	......	136.8	122.5	129.8	115.0	116.9	109.3	......	......	......	......	......	......
23.	......	......	......	......	−.6	.7	−.4	−.4	3.0	1.1	......	......	......	......	......	......
	......	......	......	......	136.2	123.2	129.4	114.6	119.0	110.4	......	......	......	......	......	......
24.	......	......	......	......	6.5	3.8	5.1	1.1	6.0	−.4	......	......	......	......	......	......
	......	......	......	......	142.7	127.0	134.5	115.7	125.0	110.0	......	......	......	......	......	......
25.	......	......	......	......	−3.2	−5.0	.5	10.2	−9.0	−6.4	......	......	......	......	......	......
	......	......	......	......	139.5	122.0	134.0	125.9	116.0	103.6	......	......	......	......	......	......
26.	......	......	......	......	−2.1	−7.5	2.2	−2.4	12.4	5.8	......	......	......	......	......	......
	......	......	......	......	137.4	114.5	136.2	123.5	128.4	109.4	......	......	......	......	......	......
27.	......	......	......	......	6.0	9.5	−1.8	−7.5	−6.4	8.6	......	......	......	......	......	......
	......	......	......	......	143.4	124.0	134.4	116.0	122.0	118.0	......	......	......	......	......	......
28.	......	......	......	......	−2.7	.4	1.8	1.5	7.0	−15.1	......	......	......	......	......	......
	......	......	......	......	140.7	124.4	136.2	117.5	129.0	102.9	......	......	......	......	......	......
29.	......	......	......	......	−2.4	2.8	−2.8	3.1	−3.3	3.4	......	......	......	......	......	......
	......	......	......	......	138.3	127.2	133.4	120.6	125.7	106.3	......	......	......	......	......	......
30.	......	......	......	......	−1.2	−10.2	−1.1	−5.8	−.1	14.9	......	......	......	......	......	......
	......	......	......	......	137.1	117.0	132.3	115.9	24.6	121.2	......	......	......	......	......	......
31.	......	......	......	......	6.4	9.0	5.2	2.4	4.4	−6.2	......	......	......	......	......	......
	......	......	......	......	143.5	126.0	137.5	118.3	129.0	115.0	......	......	......	......	......	......

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V. BIBLIOGRAPHY OF EXPERIMENTAL STUDIES IN PHYSICAL GROWTH (336 TITLES).

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In this investigation in Worcester the same children were measured twice (May, 1891, and May, 1892). The average increase in stature between 6 and 7, 7 and 8, 8 and 9, 9 and 10, 10 and 11, 11 and 12, 12 and 13, 13 and 14, 14 and 15, 15 and 16 are included for tall boys and short boys and for tall girls and for short girls. Young children grow more uniformly than older children and growth is more variable with girls than with boys. Short children continue to grow longer than tall children.

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——— Summary of the work of the committee in British Columbia. *In* British association for the advancement of science, 1898. v. 68. p. 667–83.

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Boulton, ——. Some anthropometrical observations. British medical journal (1876). p. 280–82.

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The data for this investigation were collected from 24,500 children in the public schools of Boston and near-by communities and a few private schools. A comparative study is made of the growth in height and weight and the tables are arranged in such a way that the influence on growth by nationality may be determined.

——— Growth of children. *In* Massachusetts. Board of health. 10th annual report. Boston, 1879. v. 10. p. 33–62.

This investigation is supplementary to the previous one and contains 11 tables and 11 plates. The tables give the parentage and then the occupations of parents in professional, mercantile, and unskilled labor classes.

——— The growth of children studied by Galton's percentile grades. *In* Massachusetts. Board of health. 22d annual report. Boston, 1891. v. 22. p. 479–525.

Abstract contained in American association for the advancement of physical education, 1891. v. 6, p. 36–37.

Applying this method to 24,000 Boston school children Dr. Bowditch concludes: I. The period of accelerated growth in height and weight occurs just before the age of puberty. Large children have their period of accelerated growth at an earlier age than small ones. II. The period when the girls are taller and heavier than the boys occurs earlier in the higher than in the lower percentile grades. "In other words, during the period of female superiority tall girls surpass tall boys in height less than short girls surpass short boys, while heavy girls exceed heavy boys in weight more than light girls exceed light boys."

——— The physique of women in Massachusetts. *In* Massachusetts. Board of health. Report. Boston, 1890. v. 21. p. 287–304.

——— The relation between growth and disease. *In* American medical association, Philadelphia. Transactions, 1881. v. 32. p. 370–76.

This is a valuable discussion based on the thesis that "It seems probable that the actual determination of the normal rate of growth will not only throw light upon the nature of the diseases to which childhood is subject, but will also guide us in the application of therapeutic measures."

An individual study of the rate of growth of one girl between the ages of two and three years is included, based on 26 measurements in weight with accompanying health notes from four observations.

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Boyd, Robett. Table of weights of the human body and internal organs in the sane and insane, etc. Phil. Trans., London, 151:241–62 (1861).

This table includes ages from before birth to 80 years and the results show that the body and internal organs arrive at full size in both sexes between twenty and thirty years of age. "The average height of the adult male varied from 67.8 to 65 inches, and of the female from 63.2 to 61.6 inches, while the mean weight of the former varied from 112.12 to 91.5 pounds, as compared with the sane adults dying at the same period of life.

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An abstract of paper giving measurements out of 1,000 individuals. The average height of English men is placed at 5 ft. 7½ inches.

——— Tables illustrative of the height, weight and strength of man. *In* British association for the advancement of science, 1845. v. 15. p. 80–81.

In these tables men are grouped as tall, middle height, and short. Of 100 Englishmen of all classes 4 are very tall, 6 feet 3 inches; 26 are tall, 5 feet 9 inches to 6 feet; 40 are of middle height, 5 feet 9 inches; 26 are short, 5 feet 3 inches to 5 feet 6 inches; and 4 are very short, 5 feet to 5 feet 3 inches.

Breslau, ——. Neue ergebnisse aus schädelmessung an neugeborenen. Wiener medicinische wochenschrift, 50:785–87 (1862).

Brown, C. R. Anthropometric notes on the inhabitants of Clara Island, Ireland. *In* British association for the advancement of science, 1897. v. 67. p. 510–11.

A study of the average height of 56 adult males giving an average of 66.75 in.

Brunniche, A. Ein beitrag zur beurteilung der körperentwicklung der kinder. Jahrb. für kinderkrankheiten, 47:1–28 (1866).

Bryan, E. B. Nascent stages and their pedagogical significance. Pedagogical seminary, 7:357–96 (1900).

This is one of the most important articles on physical growth from the standpoint of periods of development. The author bases his conclusions on the work of thirty-seven different writers. After outlining the periods of childhood as differentiated by Hartwell, Lange, Zeissing and others, he finds there are three periods: Infancy, childhood and youth. Each of these stages is discussed from the scientific and pedagogical points of view.

Burgerstein, Leo, *and others*. Schulhygiene. Jena, Fisher, 1902. p. 473–485.

A good summary of anthropometric work with references to American studies, including tables and curves. A short bibliography is included.

Burk, F. Growth of children in height and weight. American journal of psychology, 9:253–326.

This is the most general contribution to the subject of physical growth up to the year 1898. Most of the significant contributions previous to this are discussed and a number of tables included. Probably the most important single discussion is the series of norms derived from a comparative study of the work of Boas, Bowditch, Porter and others.

——— Influence of exercise upon growth. *In* National education association of the United States. Journal of proceedings and addresses, 1899. p. 1067–76.

A good general account of the effect of physical exercise on growth.

——— The influence of sex upon growth. American physical education review, 4:340–49 (1899).

The conclusions of this report emphasize the fact that exercise should follow racial habit as far as possible.

Camerer, W. Bermerkungen über wachstum. Zsch. für biologie (1880). p. 24–28.

A short, detailed study of infant growth which was reprinted in the article which follows.

——— Untersuchungen über massenwachstum und langenwachstum. Jahrb. für kinderheilkunde, 36:249–93 (1893).

Carmon, W. B. Causes of some rapid changes in body weight. Journal of the American medical association, 59:725–71 (1912).

A brief discussion of theoretical value.

Cattell, J., *and* Farrand, L. Physical and mental measurements of the students of Columbia university. Psychological review, 3:618–48 (1896).

A detailed and important study of mental tests and physical characteristics with some suggestions on anthropometric measurements.

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Chaille, S. E. Infants: their chronological progress. New Orleans medical and surgical journal, 14:893–912 (1886–87).

This report contains a few measurements and many suggestions for observation.

Chamberlain, A. F. The child. New York, Scribner, 1900. p. 51–106.

A general discussion of the problem of physical growth from the anthropological and educational standpoints.

Christopher, W. S. Measurements of Chicago children. Journal of the American medical association, Chicago, 35:618–23; 683–87.

This is a detailed illustrated report of the work done at Chicago by Smedley, Campbell, McMillan, and others in the Chicago public schools. The charts and graphs are included in the report of Mr. Smedley, which is noted further along in this bibliography.

In the second part of this report Dr. Christopher says: "As a result of his examination of 33,500 school children in St. Louis, in 1892, Dr. W. Townsend Porter concluded that there is a physical basis of precocity; that dull children are lighter and precocious children heavier than the average child; that mediocrity of mind is associated with mediocrity of physique At the outset of my investigations I determined to reinvestigate Porter's proposition, and have to say that such facts as we have been able to collect go to confirm it."

Combe, J. Körperlänge und wachstum der volksschulkinder in Lausanne. Zsch. für schulgesundheitspflege, 9:569–89 (1896).

During the seven years of Dr. Combe's investigation 2,000 children were measured, giving a sum total of 13,358 measurements. The value of individual measurements is discussed, and also the relation of disease to growth in height at different ages with reference to time of birth in the year, and to parentage.

Cordeira, F. J. B. A contribution to anthropometry. New York medical journal, 45:484–87 (1887).

An illustrated article showing the method of computing height and weight curves, with a number of conclusions and criticisms bearing on the work of other investigators, together with some data on the average maximum and minimum measurements for height, weight, chest, and chest expansion between the ages of 14 and 18 for sailors on the *Minnesota*.

Crampton, C. W. Anatomical or physiological age: *versus* chronological age. Pedagogical seminary, 15:230–37 (1908).

A general discussion of the previous work done in this field by the writer and a recommendation that "All observations, records, and investigations of children, whether pedagogical or medical, social or ethical, must regard physiological age as a primary and fundamental basis."

—— Influence of physical age on scholarship. Psychological clinic, 1:115–20 (1908).

In this article Dr. Crampton discusses the relation of physiological age, as determined by pubescence and height, to scholarship. The tables are confined to boys (?) between the ages of 12 and 17 years. The conclusions are that "Earlier pubescence favors good scholarship; later pubescence poor scholarship."

—— Physiological age. American physical education review, 13:144–54; 214–27; 268–83; 345–58.

The best study so far made on the age of puberty of boys. The age at which this usually takes place is from 13.5 to 14.5. "Individuals differ from each other in weight (and height) according to their maturity." There is, according to these results, no marked primary relation between scholarship and weight, height, strength, etc.

Crichton-Browne, *Sir* J. Growth—somatic and cerebral. Child study, 4:77–91 (1911).

A good general discussion without detailed anthropometric measurements.

Daffner, F. Über grösse, gewicht, kopf und brustumfang beim männlichen individuum vom 13 bis 22 lebensjahre. Archiv für anthrop. (beilage), 15:121–26 (1884).

Supplementary to the following study but confined to males and including chest circumference. A small number of individuals is included; each year from 13 to 22 are taken up separately.

—— Vergleichende untersuchungen über die entwicklung der körpergrösse und kopfumfanges. Archiv für anthrop., 15:37–44 (1884).

A good discussion of the subject, including many tables.

—— Das wachstum des menschen. Anthropologische studien. Leipzig, W. Englemann, 1902. 475 p.

A good study of growth of different parts of the body, starting with the embryo and including puberty.

Data on measurements of 6,000 California school children as to weight and measurement. *In* Oakland, Cal. School report, 1892–93.

See Barnes.

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Debusk, B. W. Height, weight, vital capacity, and retardation. Pedagogical seminary, 20:89–92 (1913).

A brief preliminary study of physical development.

Dickson, S. H. Some additional statistics of height and weight. Charleston medical journal and review, 13:494–506 (1858).

In this report a comparison is made between the heights and weights of Americans of different nationalities with the stature and weight of Europeans. Results are based on students of the Medical college of South Carolina, the University of Louisiana, the University of Tennessee, Jefferson college, Virginia military institute, the Military academy at West Point, and the University of Michigan. Conclusions show that Europeans increase more in weight than Americans as they grow older. The Americans have on the average greater height.

——— Statistics of height and weight in the South. Charleston medical journal and review, 12:607–13 (1857).

Dr. Dickson has collected in this report some detailed statistics in regard to the average height and weight of Southern men. A careful study is made of the different nationalities, of students and recruits with the conclusion that on the average men from the Atlantic Southern States are not so tall as those from Kentucky, Tennessee, and Virginia, although the two tallest men in the army in 1857 were from Georgia and South Carolina respectively.

——— Statistics of height and weight. American journal of medical sciences, Philadelphia (1866). 52:373–380.

This report shows that the new American race, which is growing out of an almost unlimited mixture of other races, exhibits thus far no deterioration, but compares favorably with all the races of the Old World in every point of physical development. The whole number of individuals (286 young men from Jefferson college) average 24 years of age, 5 feet 9½ inches in height, and 147 pounds in weight. Kentuckians were the tallest people, who average 5 feet 11 inches, one being 6 feet 6 inches.

Diek, ——. Materali k izsledovaniyi roste, viesa, okruzhnosti grundi i zhiznennoe yomkosti lishkickh detskavo i yunosheek. Voyenno-med. journal, St. Petersburg, 146:223–363 (1883).

A report of the stature, weight, and vital capacity of children in Russia. An inaugural dissertation given in St. Petersburg, cited by Sack.

Donaldson, H. H. A comparison of the white rat with man in respect to the growth of the entire body. Lancaster, Pa., New Era co., 1906. p. 26.

Reprinted.

A very important comparison between the growth in body-weight of the rat for 365 days, and of man from birth to 23 years of age, the latter being based on Robert's tables. The conclusions reached are that "the increase in body weight of the man and the white rat between conception and maturity exhibit similar phases, five in number." The growth of the female in relation to that of the male is similar in both forms, as are also the relative weights of the two sexes at maturity.

——— Growth of the brain. London, 1896. 369 pp.

Chapters 2 and 3 are very good on the general problem of physical growth.

Drummond, W. B. Introduction to child study. London, 1907. p. 93–138.

A general treatment of growth for the first four years; quotes Holt extensively.

Dudrewicz, L. Pomiary antropolog. dzieci Warszawskich. Zboir. wiad. do antrop. . . . Akad. Umiej. w Krakow, 6:3–23 (1882).

Anthropological measurements of children in Warsaw.

Dun, W. A. The police standard of Cincinnati; with some statistics compiled from the first thousand examinations of applicants. Lancet-clinic, Cincinnati, O., 18:131–35, 767–76 (1887).

Contains many valuable tables for comparative study on minimum height and weight requirements.

Elliott, E. B. On the military statistics of the United States of America. U. S. Sanitary commission, Berlin, 1863. v. 4. p. 44.

Reprinted.

A comparative study of the heights, weights, etc., of Soldiers in the Army of the Potomac.

Ellis, H. Man and woman. London, 1896. p. 31–114.

Also published by Scribner, New York, 1904. p. 32–54.

In chapter 3 of this book there is a good discussion of the growth and proportions of the body. A number of references are given and four charts from Key showing the relative increments of growth in height and weight from 7 to 20 years of age. The relative proportions of different parts of the body of man and woman are compared.

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Elson, J. C. Statistics regarding short-course students. American physical education review, 15:348–49 (1910).

A brief article which shows that in a study of 8,000 college students the short course men (men who are taking special courses in agriculture) surpass in all measurements, except height, the men of the present freshmen class.

Enebuske, C. J. Some measurable results of Swedish pedagogical gymnastics. *In* American association for the advancement of physical education, 1892. v. 7. p. 207–55.

A report of observations made by M. Aura Wood on 26 students of the Boston Normal school of gymnastics. Eight tables are included and a plea is made for casuistic study in place of isolated statistical measurements.

Engelsperger, A., *and* Ziegler, O. Beiträge zur kenntnis der physischen natur des sechsjährigen in die schule eintretenden kindes. Anthropometrisches teil. Epd. 1: 173–235 (1905).

Erismann, F. Schulhygiene auf der jubilaumsausstellung der gesellschaft für beforderung der arbeitsamkeit in Moskau. Zsch. für schulgesundheitspflege, 1:367–73; 393–419 (1888).

The latter part of this report gives comparative tables with discussions on the height and weight of about 3,000 boys and 1,500 girls in the schools of the city of Moscow, and 4,300 boys and 700 girls in the nearby village schools.

——— Untersuchungen über die körperliche entwicklung der arbeiterbevölkerung in Zentralrussland. Tübingen, 1889.

Reprinted from Archiv für soziale gesetzgebung und statistik.

The latter part of this report deals primarily with hygiene and gives the results of the measurements of 24,288 boys and 16,032 girls ranging from 7 to 18 years, taken from city schools, village schools, and factories.

——— Untersuchungen über die körperliche entwicklung der fabrikarbeiter in Zentralrussland (1888).

Manuscript.

Ernst, L. H., *and* Meumann, E. Das schulkind in seiner körperlichen und geistigen entwicklung. Leipzig, Otto Nemnich, 1906. p. 143.

This book contains a fairly complete summary of the previous investigations upon physical growth and development, and a series of charts which gives the growth curves as found by the different investigators. The author's own work consists in an extensive study of something over 300 Munich children, with regard not only to height and weight but also lung capacity, span, and various girths. These figures are presented in detailed tables and the author's conclusions are compared with those of previous investigators.

Farr, W. Table showing the relative stature of boys at the age 11 to 12, under different conditions of life. *In* British association for the advancement of science, 1880. v. 1. p. 128–59.

A report of the committee of the Association, appointed originally in 1875, for the purpose of continuing the collection of observations on the systematic examination of heights, weights, etc., of the human frame in the British Empire, and the publication of photographs of the typical races of the Empire. In 1879, 46 different classes of subjects were included, giving a sum total of 11,745 individuals, while in the 1880 study one class of subjects was included, or 11,956 individuals. There are several excellent distribution tables giving the mean measurements for boys and men between 10 and 50 years, there being in all three charts (plates) and 27 tables. This is a valuable and suggestive report.

Fergus, W., *and* Rodwell, G. F. On a series of measurements for statistical purposes, recently made at Marlborough college. Journal of Anthropological institute of Great Britain and Ireland, London, 5:126–30 (1874).

A short study of the college student.

Fleischmann, L. Über ernährung und körperwägungen der neugeborenen und säuglinge. Wien, 1877. 48p.

Reprint from Wien-klinik.

A very good study of infancy.

Forbes, H. O. On the Kubers of Sumatra. Journal of the Anthropological institute, 14:121–128 (1884–85).

A careful study of 12 Kubers from the central part of Sumatra, including detailed measurements.

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Foster, A. B. Report of director of physical training. American physical education review, 3:44–53 (1898).

Reprinted from the annual report of the president of Bryn Mawr college, containing measurements on freshmen, sophomores, juniors, and seniors, and discussing various kinds of physical exercise.

Foster, W. L. Physiological age as a basis for classification of pupils entering high schools, and relation of pubescence to height. Psychological clinic, 4:83–88 (1910–11).

A study of the physiological age of 459 boys with the conclusions that there is a close relationship between height and pubescence, and that a classification of high-school students according to physiological age, based upon pubescence, is easy and practical.

French, M. S. Report of the physical examination of men upon the police force of Philadelphia, and those who were applicants for appointment. Philadelphia, 1885.

Galton, F. An anthropometrical laboratory. Journal of the Anthropological institute, 14:205–21 (1884–85).

A description of the anthropometrical laboratory, which aimed to show to the public the simplicity of the instruments and methods by which the chief physical characteristics may be measured and recorded.

——— Anthropometric percentiles. Nature, 31: 223 (1884–85).

In this article Dr. Galton gives a percentile table of the persons measured in the anthropometric laboratory at the late international health exhibit. The table is given primarily as a sample of the statistical method, and secondarily for its intrinsic value. There were in all 9,337 persons measured between the ages of 23 and 50.

——— Family likeness in stature. Royal society. Proceedings. London, 1886. v. 40. p. 42–73.

A detailed statistical study showing the correlation between the probable stature of a child when the statures of several of his kinsmen are known. The Appendix by Dr. Dixon gives eight tables showing the relation of the adult children to the mid-parents.

——— Hereditary stature. Journal of the Anthropological institute of Great Britain and Ireland, 14:488–99 (1885–86).

——— On the height and weight of boys, aged 14 years, in town and county public schools. Journal of the Anthropological institute of Great Britain and Ireland, London, 5:174–80 (1815–16).

Comparisons are made between 509 city boys, 296 country boys and others ranging from 10 to 17 years of age; it is found that the country boys are about 1¼ inches taller and 7 pounds heavier than the city boys.

——— Range in the height of males at each age and in several classes. British association for the advancement of science. Report, 1881. v. 51. p. 250–54.

——— Report of the Anthropometric committee. *In* British association for the advancement of science, 1883.

This is the final report of the committee appointed in 1875 and includes valuable data on the growth of boys and girls at birth and during subsequent ages, including adult life. While this report deals with adults primarily, the height and weight at birth of 451 boys and 466 girls are included.

——— Some results of the anthropometrical laboratory. Journal of the Anthropological institute, 14:275–88 (1884–85).

The results of measurements on 9,337 persons, 4,726 adult males and 1,657 adult females. Percentile tables are given.

——— Useful anthropometry. *In* American association for the advancement of physical education, 6:51–57 (1891).

A discussion on the means of investigating the best method of assigning marks for physical efficiency based on anthropometric tests. A study of 2,000 students at Cambridge revealed conclusively, according to Dr. Galton's observations, that success in the literary examinations is in no manner connected with stature, weight, strength, or breathing capacity, and but slightly with keenness of eyesight.

Ganjoux, ———. Annales de médecine et chirurgie. Paris, 1910. p. 725–60.

Garson, ———. Report of the committee appointed for the purpose of calculating the anthropological measurements taken at the Newcastle meeting of the association in 1889. *In* British association for the advancement of science. Report. London, 1890. v. 60. p. 549–52.

Geissler, A. Messungen von schulkindern in Gholis-Leipzig. Zsch. für schulgesundheitspflege, 5:249–53 (1892).

A supplementary consideration of the greater height of the favored classes, based on new data which consists of the measurements of 2,806 children at the end of the summer vacation in 1889.

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Geissler, A., *and* Uhlitzsch, R. Die grösenverhältnisse der schulkinder in schulinspektionsbezirk Freiburg. Zsch. des königlichen sächsischen statistischen bureaus, 34:28–40 (1888).

This investigation was begun in 1866 for the purpose of fitting school desks, and is a comparative study of the boys and girls of the Freiburg burger schulen and of those of the peasant classes in nearby communities. 21,173 children were in the schools, ranging from 6½ to 14½ years of age. A critical study of the arithmetical average is included.

Gihon, A. L. A study of adolescent growth based on the physical examination of 6,129 naval cadets and candidates for appointments as cadets and 2,058 naval apprentices. Report of the Surgeon-general, U. S. Navy. Washington, 1880. p. 15–44.

Gilbert, J. A. Researches on school children and college students. University of Iowa studies in psychology, 1897. v. 1. p. 1–39.

Supplementary to the previous investigation with extra data, especially on dullness and precocity. The curves for height, weight and lung capacity and for dullness and precocity are included. Tests on various mental traits are included.

——— Researches on the mental and physical development of school children. Studies from Yale psychological laboratory. v. 2. p. 40–100.

The curves charted consist of those of the growth of boys and girls; of each sex separately; the mean variation for both sexes, then each sex separately.

Girond, Gabriel. Observations sur le development de l'enfant. Petit guide anthropométrie familiale et scolaire. Paris, Schleicher frères, 1902. 53 p. and tables.

A small guide for the physical observations of children, with a few statistics on growth in weight.

Goddard, H. H. The height and weight of feeble-minded children in American institutions. Journal of mental and nervous diseases, 39:217–235 (1912).

The most comprehensive study, so far published, on the growth, height and weight of feeble-minded children. Four tables and seven charts are included and the data are derived from twenty institutions. Some of the conclusions are that all defectives are heavier at birth than normals; sex differences are less marked as we go down the grades; with the morons there is an arrest of growth earlier than with normals; there is close correlation between physical growth and mental activity.

Gould, B. A. Investigations in the military and anthropological statistics of American soldiers. U. S. Sanitary commission, N. Y., 1869. v. 2. 655 p.

Gratsianoff, ———. Materials for the investigation of physical development in childhood and youth in relation to heredity and to progress in school work. From observations made in Arzamas, province of Novgorod. Inaugural dissertation. St. Petersburg, 1889.

An important study not accessible to the author.

Graupner, ———. Wachstumgesetze der körperlänge nach untersuchung von 57,000 Dresdner schulkinder. Bericht des ersten Internationalen kongresses für schulhygiene, 1904. p. 421–25.

Gray, F. J. Diurnal variations in weight. American physical education review, 15:6–14 (1910).

A thesis presented for bachelor's degree in physical education at the International Y. M. C. A. training school, in June, 1908. After making comparisons with the work of M. A. Burke, H. Carrell, H. Cook, B. B. Forte, C. H. Goodwin, A. Gould, and others, the writer finds that all men gain "during the season." Seasoned athletes gained less during a season of training than green athletes.

Greenleaf, ———. New table of physical proportions. Baltimore underwriter, 43:303 (1890).

A study of the relative proportions of the body.

Greenwood, J. M. Heights and weights of children. *In* Kansas City. Board of education. Report, 1890–91.

See also American public health association. Report, 1892. v. 17. p. 199–204.

The chief value of this study consists in the number of measurements included.

Gregor, W. Galloway folk in Wightshire and Kirkendbrightshire. *In* British association for the advancement of science, 1897. v. 67. p. 500–3.

A comparative study of the heights of 82 men and 34 women, the height for the men averaging 68.25 inches, for the women 63 inches.

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Grinevski, A. On the physical development of children. Kvoprosu o fizicheskom vospitanii dietei. Odessa, 1892. 36 p.

Grünbaum, O. F. F. On the physical characteristics of the inhabitants of Barrington and Foxton in Cambridgeshire. *In* British association for the advancement of science, 1897. v. 67. p. 505.

A comparative table showing the height of 23 males varying from 153.3 cm to 174.4 cm.

Gulick, L. Physical measurements and how they are studied. Physical education, 2:140–41; 152–53; 186–91 (1893).

A series of practical suggestions on how to make, record, and study physical measurements.

——— The value of percentile grades. *In* American statistical association (quarterly) 21:321–31 (1893).

A detailed discussion of the theoretical significance and the percentile method of using data.

Haddon, A. C. On the physical characteristics of the inhabitants of Barley, Herts. *In* British association for the advancement of science. Report, 1897. v. 67. p. 504–5.

A number of measurements are included in this report on the observations of 15 males from Barley.

Hall, G. S. Growth in height and weight. *In his* Adolescence. New York, D. Appleton & co., 1904. v. 1. p. 1–50.

The best summary without direct experimental data, up to date, of the problem in height and weight. The work of Boas, Burk, and Wiener is especially emphasized and the more general and interrelated problems of development are treated in a very scholarly and helpful manner.

Hall, W. S. Changes in the proportions of the human body during the period of growth. Journal of the Anthropological institute of Great Britain and Ireland, 25:21–46 (1895).

A study in growth in height of boys in Friends' schools and Haverford college ranging from 9 to 21 years of age. Many other measurements are included and some conclusions in regard to strength. There was a great homogeneity of race, nationality, and social conditions among the individuals in these schools.

Hanna, D. Anthropometric tables compiled from the measurements of 1,600 women (Oberlin students). Oberlin college. Dept. of physical training. Oberlin, O., 1893.

An elaborate series of tables showing many comparative measurements.

Hansen, S. Über die individuellen variation der körperproportionen. Archiv für anthrop., 20:321–23 (1891–92).

This investigation is based on 2,883 cases and gives the results, in tabular and graphic form, of the relation of the length of the foot to the height of the body.

Harrington, T. F. Health and education. American physical education review, 15:373–88 (1910).

Contains, after a discussion on health and ventilation, a study of the weight of 763 boys and 653 girls born in Boston, whose parents were born in Boston and attended the same schools from which Dr. Bowditch secured his measurements in 1876. At the present stage of this investigation the boys are slightly lighter than those of 1876, except at 13 years of age, and the girls are heavier.

Hartwell, E. M. Bowditch's law of growth and what it teaches. *In* American association for the advancement of physical education, 1896. p. 23–30.

Bowditch's law of growth is as follows: "There is a prepubertal acceleration of growth in height and weight, both in males and females, followed by a postpubertal retardation in such growth; and girls when growing most rapidly, exceed boys of like age, in height and weight." It has been thought that Bowditch was the first to note this, but it was previously noted by Dr. Fahrner, who measured 1,789 children for desks.

——— Preliminary report on anthropometry in the United States with provisional list of works relating to anthropometry in the United States. *In* American statistical association. Boston, 1893. v. 3. p. 554–68.

A summary and bibliography of the work in anthropometry in this country.

——— Reports on physical training in Boston public schools. *In* Boston, Mass. School report, 1894–95. p. 181–260.

A careful study of the relation of stature to school work.

Hasse, E. Beiträge zur geschichte und statistik des volksschulwesens von Gohlis Leipzig, Dunker und Humbolt, 1891.

Reprinted from the Report of the city of Leipzig, 1889.

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Hastings, W. W. Anthropometric studies in Nebraska. American physical education review, 5:53–66 (1900).

Also in National education association of the United States. Journal of proceedings and addresses, 1899. p. 1076–84.

In this investigation 15 measurements were made on 2,500 public-school children of Nebraska. Conclusions are given as to comparative weights of boys and girls, physical well being and mental efficiency, height and nationality. Tables are given showing average height and weight, for boys and girls, for different ages and different grades.

——— Brief résumé of Quetelet's treatise on man. American physical education review, 3:258–69; 309–18; 366–76 (1898).

A good summary of this book, which is anthropological rather than anthropometrical in its content.

——— Health and growth of school children. *In* National education association of the United States. Journal of proceedings and addresses, 1903. p. 769–75.

A summary which first takes up the methods of ascertaining the normal periodic increase of growth, and secondly, the practical methods of comparing the individual child with this known standard.

——— A manual for physical measurements. New York, Macmillan co., 1902. 112 p.

The best summary from an anthropometrical standpoint so far published. A large amount of comparative material has been included and many practical suggestions given. A good bibliography is appended.

Hergel, G. Was ist auf dem gebiete der körperlichen ausbildung unserer mittelschuljugend erreichbarō Zsch. für schulgesundheitspflege, 10:333–34 (1897).

A brief discussion leading to other papers on physical training.

Hertel, A. Neuere untersuchungen über den allegemeinen gesundheitszustand der schüler und schülerinnen. Zsch. für schulgesundheitspflege, 1:167–83; 201–15 (1888).

A comparison is made between age, height, and diseases of children between the ages of 6 and 17 as shown by Hertel's report, a report of the Danish commission and a report of the Swedish commission. The emphasis in the article is placed on the relation of disease to physiological growth.

——— Overpressure in high schools of Denmark. Tr. by Godfrey Sorenson. New York, Macmillan co., 1885.

This is an English translation of Hertel's book which discusses the question of growth and prevalence of chronic diseases among children of different ages.

——— The report of the Danish commission. (1882.)

This report takes up age, length of work, time at home and school, height, weight, and the common diseases, and a comparison is made between the pupils in the higher and the volkschulen. 17,595 boys and 11,646 girls were included, both in Copenhagen and in the country.

Hess, W. Bestimmung des gewichtes und messungen der körperlänge bei einem kinde im ersten und zweiten lebensjahre. Archiv für gynaekologie, Berlin, 17:150–52 (1881).

Hitchcock, E. (a) Anthropometrical data based upon nearly 3,000 measurements taken from students. Amherst, 1888.

Included in program of exhibition of physical exercises (a, b, c, d, e).

——— (b) Average and mean anthropometric data of Amherst college students. Amherst, 1888.

A series of elaborate tables.

——— (c) The gain in physical strength of college students. Amherst, 1892. Two tables.

——— (d) Physical growth of Amherst students. Gain between freshman and senior years. Amherst, 1892.

——— (e) The distribution of physical measurements shown in the different years of college life. Amherst, 1892.

——— Anthropometric statistics of the students of Amherst college. *In* American statistical association. (Quarterly publications) Boston, 1893. v. 3. p. 588–99.

A summary of the statistical work of the department of physical education.

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Hitchcock, E. Comparative study of measurements of male and female students at Amherst, Mt. Holyoke and Wellesley colleges. *In* American association for the advancement of physical education, 1891. v. 6. p. 37–42.

A discussion of Dr. Bowditch's paper on percentile grades, accompanied by three tables. The first table gives the average measurements of 2,000 students; the second, the means rather than the averages for 2,086 students; and the third, the average measurements of 326 college men between 21 and 22 years of age.

——— The need of anthropometry. *In* American association for the advancement of physical education, 1887. v. 3. p. 3–8.

A discussion of the history of anthropometry, together with suggestions on how to take measurements accurately.

——— Physical measurements, fallacies and errors. *In* American association for the advancement of physical education, 1887. v. 3. p. 35–42.

Dr. Hitchcock reaches the conclusion in this discussion that "human measures increase with height, always understanding that the law will not include some of the tests of strength." A criticism of the Hemenway charts is also included.

——— The result of anthropometry as derived from the measurements of the students in Amherst college. Amherst, Mass., Carpenter & Morehouse, 1892. 7 p.

Contains several reports.

——— A synoptic exhibit of 15,000 physical examinations. *In* American association for the advancement of physical education, 1890. v. 5.

——— Seeley, H. H., *and* Phillips. The anthropometrical manual of Amherst college. Amherst, Mass., Carpenter & Morehouse, 1900. 40 p.

Holmes, B. Order of physical growth of the child. *In* Illinois society for child study. Transactions, 1897. v. 11. p. 201–15.

This article deals primarily with the influences affecting growth and gives two of Porter's tables.

———A study of the growth of children, being a review of the work of Dr. Wm. T. Porter of St. Louis. New York medical journal, 60:417–23 (1894).

A critical discussion of Dr. Porter's work.

Hrdlička, A. Anthropological investigations on 1,000 white and colored children of both sexes. *In* New York juvenile asylum. 47th annual report. New York, Hollenbeck Crawford co., state printers, 1899. v. 47. p. 1–86.

The author finds these children slightly inferior to healthy children from good homes but attributes it to neglect and improper nutrition. The report contains the results of much painstaking anthropometrical research and a discussion on the stigmata of degeneration.

Hudson, G. H. A plea for a more general recognition of phenomena of child growth in education. Education, 14:466–77.

A general discussion in growth without empirical data or measurements, emphasizing the recapitulation theory.

Hurd, K. C. On anthropometry. Times and register, N. Y. and Phila., 7:506–11 (1890).

This article takes up the question of the method and value of anthropometry and gives the data used in Galton's Anthropometric laboratory. The author begins by making a plea for compulsory anthropometry in our schools.

——— Some of the Francis Galton tests concerning the origin of the human faculty *In* American association for the advancement of physical education, 1891. v. 6. p. 80–96.

An application of Galton's measurements to Bryn Mawr schools and Bryn Mawr college, including some anthropometric measurements.

Hutchinson, John. Contributions to vital statistics obtained by means of pneumatic apparatus for valuing the respiratory powers in relation to health. Quarterly journal of the statistical society, London, 7:193–212 (1844).

Included on account of the statistics and for the historical value.

——— On the capacity of the lungs and on the respiratory functions, etc. Medical chirurgical transactions, London, 29:137–252 (1846).

A very good pioneer study in lung capacity.

Jackson, W. A., *jr.* Graphic methods in anthropometry. Physical education. 2:89–94 (1893).

Diagrammatic charts on physical growth and proportions of different parts of the body.

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Jackson, W. A., *jr.* Tables of the anthropometric measurements of the Williston seminary students. The Willistonian, Easthampton, Mass. (1892). p. 140.

Karnitsky, A. C. Zur physiologie des wachstums und der entwicklung des kindlichen organismus. Jahrbuch für kinderheilkunde, 68:462–74 (1908).

Karstädt, F. Über das wachstum der knaben vom 6. bis 16. lebensjahre. Zsch. für schulgesundheitspflege, 1:69–74 (1888).

The growth of boys in height furnishes the object of this study. It is based on 4,274 semiannual measurements over the years from 6 to 16 (not consecutive measurements on the same individual). Maximum and minimum heights and increments are given. The measurements were taken in the Höhren burgerschule I in Breslau.

Kellogg, J. H. Outline studies of the human figure, comprising 118 figures which embody the results of several thousand observations, embracing studies of a number of different civilized and uncivilized races. Chicago, Battle Creek, Mich. [etc.], Mod. med. pub. co., 1893.

—— The value of strength tests in the prescription of exercise, and a comparative study of the strength of individual groups of muscles, and of homologous muscles of men and women. *In* American association for the advancement of physical education, 1896. p. 49–75.

The value of strength tests in the prescription of exercise, and a comparable study of the strength of individual groups of muscles and of homologous muscles, in men and women, are given in this report. Many physical measurements of different parts of the body are included.

Key, Axel. Läroverkskomiténs betänkande, III. Bilage E. Kongl. boktrycheriet. Stockholm, 1885. 2 v.

Edited in German by Bürgerstein. Schulhygienische untersuchungen, Hamburg, 1889.

A report of the Swedish commission of which Key was appointed chairman in 1882. About 15,000 boys and 3,000 girls were examined. Most of the book is concerned with hygienic investigations and an important contribution is made bearing on the relation of disease to nodes of growth. The study of the height and weight extends from the age of 6 to 20 years.

—— Die pubertätsentwicklung und das verhältnis derselben zu den krankheitserscheinungen der schuljugend.

Reprinted from the proceedings of the 10th International congress of medicine, 1890. v. 1. p. 66–130.

—— Schulhygienische untersuchungen. Leipzig und Hamburg, L. Bürgerstein, 1889. 346 p.

Key found in Sweden that liability to sickness decreases with increasing rate of growth, and increases with decreasing rate of growth; therefore one may be taken as the measure of the other.

King, I. Measurements of the physical development of two children. Journal of educational psychology, 1:279–86 (1910).

An important individual study of the author's two boys, one between the ages of birth and 6 years, and the other for the first three years. Fourteen measurements besides height and weight are included.

Kirchhoff, A. Zur statistik der körpergrösse in dem Saalkreise zu Halle und dem Mansfelder Seekreise. Archiv. für anthrop., Braunschweig, 21:133–43 (1892–93).

In this investigation, which was carried on in 1882, Dr. Kirchhoff makes some very interesting comparisons. 2,637 measurements were made in the Saalkreise and 2,812 on the Seekreise.

In a distribution chart arranged on Eisenben the proportion was 1,520 millimeters to 1,880 millimeters as compared with 1,520 to 1,765 on Köennern.

Kirkpatrick, E. A. Physical growth and development. (Fundamentals of child study.) New York and London, Macmillan co., 1907. p. 15–30.

A brief but suggestive discussion on the general problem of growth.

Kosmowski, W. Über gewicht und wuchs der kinder der armen in Warschau. Jahrbuch für kinderheilkunde, 39:70–76 (1895).

Kottelman, L. Die körperverhältnisse der gelehrtenschüler des Johannaeus in Hamburg. Zsch. des königlichen preussichen statistischen bureaus, Berlin (1879).

An important investigation based on measurements in height, weight, and lung capacity of 115 boys from 10 to 15 years of age.

Landsberger, ——. Das wachstum der knaben vom 6. bis zum 13. lebensjahre. Zsch. für schulgesundheitspflege, 1:65–69 (1888).

See Karstädt.

An important investigation based on consecutive measurements of 37 children between the ages of 6 and 13. Many other measurements are included and a comparison is made with the work of Bowditch and other investigators.

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Landsberger, ——. Das wachstum im alter der schulpflicht. Archiv für anthrop., Braunschweig, 17:229–64 (1888).

A report of the growth of 104 children through a period of five years.

Lane, W. A. Some of the laws which influence the growth of children. *In* International congress of hygiene. Proceedings. London, 1892. p. 103–9.

A general discussion.

Lange, E. Die gesetzmässigheit im langenwachstum des menschen. Jahrb. der kinderheilkunde, 57:261–324 (1903).

Lee, A., *and* P. K. Data for the problem of evolution of man. *In* Royal society. Phil. transactions. London, 1901. v. 196. p. 225–64. Series A.

A good treatment of the general problem of physical development.

Lee, C. A. A table showing the physical characteristics of the United States Senate. Buffalo medical and surgical journal, 6:390–96 (1866–67).

Leshaft, ——. Materials for the study of the years of school life. Health (1879–80). p. 127–31.

Russian, cited by Sack.

Liharzik, F. Der bau und das wachstum der menschen. Sitzungsberichte d königlichen akademie in Wien. Mathematisch-naturwissenschaftliche klasse, abtheilung, 2:44 (1861).

——— Das gesetz des menschlichen wachstums. Wien, Carl Gerolds sohn, 1858. 188. cxvi.

A good pioneer study of measurements of the head and chest.

Lincoln, D. F. Anthropometry individualized. *In* American association for the advancement of physical education, 1896. p. 4–11.

A practical paper with some very good observations on sexual maturity.

Macdonald, Arthur. Experimental study of children. *In* U. S. Bureau of education Report of the Commissioner for the year 1897–98. v. 1. p. 989–1204. v. 2. p. 1281–1390.

An extensive study of numerous physical and mental measurements of white and colored children in Washington. A number of comparisons of head measurements are made, and it is concluded that white girls have a greater standing height and sitting height than colored girls, but colored children have a greater weight than white children. Children of the laboring class are superior in height, sitting height, and weight to those of the nonlaboring class, which confirms the results of Roberts, Bowditch, and Baxter. Girls are superior to boys in their studies. Children with abnormalities are inferior in height, weight, and the other measurements included.

Many charts, tables, and illustrations are given, and a bibliography is appended.

——— Neuere amerikanische arbeiten auf dem gebiete der kinderforschung. Zsch. für pädagogische psychologie, 2:112–21 (1900).

——— Über körpermessungen an kinder. Deutsche zsch. für ausländisches unterrichtswesen, 4:253–66 (1899).

A translation of the previous article.

Malling-Hansen, P. R. Einige resultate der täglichen wägungen von 130 zöglingen des königlichen taubstummeninstituts in Kopenhagen. *In* Congrès périodique international des sciences médicales, Kopenhagen. v. 3. p. 103–19.

This is an address covering the subject of seasonal variations, and a consideration of the effect of change of diet on growth in weight at different times of the year.

——— Perioden im gewicht der kinder und in der sonnenwarme beobachtungen. Kopenhagen, 1886. Fr. 3. p. 268.

——— Uber periodicität im gewicht der kinder an täglichen wägungen. Kopenhagen, 1883. v. 1. p. 35.

An extensive and careful treatment of the seasonal period of growth.

——— Uber periodizität im gewicht der kinder. Kopenhagen, 1883. 35 p.

Deals primarily with the seasonal and daily variations in growth due to climatic conditions.

Meek, K. Volummessungen des menschlichen körpers und seiner einzelnen theile in den verschiedenen alterstufen. Zsch. für biologie, Munchen und Leipzig, 31:125–47 (1894).

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Mereshoffsky, K. On the results and methods of the investigation of the physical development of children.

Brochure. Russian, cited by Sack. Not accessible to the writer.

Meuman, E. Vorlesung zur einführung in die experimentelle pädagogik. Leipzig, Engelmann, 1911. 725 p.

The third chapter of this book contains a very valuable chapter on growth. A bibliography is appended.

Michailoff, ———. Materials for the estimation of physical development and disease in the village school of Russik in the province of Moscow. Moscow, 1887.

Russian, cited by Sack. Not accessible to the writer.

Misawa, Tadasu. A few statistical facts from Japan. Pedagogical seminary, 16:104–12 (1909).

In 1901 the Department of education of Japan measured the heights and weights for 869,014 children and Dr. Misawa reports the results of this study in the above article.

Miwa, Norhiva. A study upon weight from 3 to 80 years of age. Tokio I—Gauk—Zwai—Zatumshi (1893) v. 7. no. 9.

These measurements begin in the kindergarten and extend through the schools and to adults from other sources. A study of the effect of the weights in different classes of society is included, together with the problem of maturity.

Moon, S. B. The growth of boys. *In* American association for the advancement of physical education, 1896. p. 19–23.

A brief article giving the measurements in a percentile table for 150 boys who are measured annually from 11 to 15 years of age.

——— Measurements of the boys of the McDonogh school for 1881–91. McDonogh school, Md., 1892. 46 p.

——— The question of growth at puberty. American physical education review, 4:294–98 (1899).

Data are given with a view of testing Bowditch's law specifically in regard to retardation before pubescent acceleration. The law is not satisfactorily confirmed. It is concluded that "pubertal attainment has but little, if any, effect upon the rate of growth, at least in many cases."

Morey-Errant, D. Unity of the periods of growth in a man. *In* Illinois society for child study. Transactions, 1898. v. 4. p. 84–91.

A general discussion bearing primarily on puberty.

Morse, W. H. The baby's growth. Virginia medical monthly, 13:392–95 (1886–87).

A brief study of the weight of infancy, showing the comparative stages of physical development.

Muller, G. Alphonse Bertillon's method for the identification of criminals. Anthropometric identifications. Instructions for taking measurements and descriptions. Joliet, Ill., 1887. v. 8. p. 84.

A practical guide for criminologists.

Nagorsky, ——. The influence of schools on the physical development of children. St. Petersburg, 1881.

Russian, cited by Sack. Not accessible to the writer.

Oppenheim, N. Development of the child. New York, Macmillan co., 1898. p. 1–92.

A good general treatment of growth, without statistics or original measurements.

Pagliani, L. Sopra alcuni fattori dello sviluppo umano-richerche anthropometriche. *In* Atti dell r. Accad. di scienze di Torino, 1875–76. v. 11. p. 694–760.

Also in Arch. di anthrop. ed etnol. italiana, 6:129–83 (1876).

These children were examined and measured in Turin and the accompanying tables give the effect of growth under favored and under less favored conditions, together with the effect of exercise on the development of the lung capacity of boys.

——— Lo sviluppo umano per età, sesso, condizione sociale ed etnica studiato nel peso, statura, circonferenza toracica, capacita vitale e forza muscolare. Giornale della Società italiana d'igiene, Milano, 1: no. 4, 357–76; no. 5, 453; no. 6, 589–608 (1879).

Paillot de Montabert, M. P. Traité complet de la peinture. Paris, J. F. Delion, 1828–29. 662 p.

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Pearson, K. Growth of St. Louis children. Nature, 51:145–46 (1894).

In this investigation Dr. Pearson summarizes Galton's percentile methods and says that it is now acting as a distinct hindrance to statistical theory in an unexpected way, since it does not require the investigator to publish his raw material. A criticism is given of Dr. Porter's work on this basis, since the material is only given in the form of percentiles or in diagrams of the "Orgive" curve corresponding to the integral of the frequency curve.

Peckham, C. W. The growth of children. *In* Wisconsin. Board of health. Report, 1881. v. 6. p. 28–73.

About 10,000 children in the various schools of Milwaukee were measured and examined in 1881, ranging in age from 4 to 18 years. Eleven plates and 13 tables giving the rates of growth by nationality are included.

——— Various observations on growth. *In* Wisconsin. Board of health. Report, 1882. v. 7. p. 185–88.

This investigation showed there were certain important differences in the rates of growth of Boston children and Milwaukee children.

Porter, W. T. Anthropometrical measurements in schools. Educational review, 11:126–33 (1896).

A practical discussion of the study of physical growth from the educational standpoint.

——— The growth of St. Louis children. *In* American statistical association. (Quarterly publications), 1894. v. 4. n. s., p. 28–34.

Also in Academy of science of St. Louis, 1894. v. 6. p. 263–380.

This is one of the most significant investigations so far made, including measurements in height, weight, and span of arms, strength, girth, measurements of face and head, based on 34,354 children. A careful discussion of statistical measurements is included. There are 51 tables given in percentile grades and 46 plates. A bibliography is appended.

——— On the application to individual school children of the mean values derived from anthropological measurements by the generalizing method. *In* American statistical association. Boston, 1892–3. v. 3. n. s., p. 576–87.

A discussion of the significance of deviations above or below normal height and the requirements of a proposed system of physical measurements.

——— The physical basis of precocity and dullness. *In* Academy of science of St. Louis. Transactions, 1893. v. 6. p. 161–81.

In this investigation, which is based on the previous one, Dr. Porter gives 15 tables and 2 charts, tracing the development by age of dull, mediocre and precocious boys and girls and maintains that "Precocious children are heavier and dull children are lighter than mean children of the same age."

——— The relation between the growth of children and their deviation from the physical type of their sex and age. *In* Academy of science of St. Louis. Transactions, 1893. v. 6. p. 263–80.

In this investigation Dr. Porter compares the growth of the school children in the Freiburg with those in St. Louis and concludes: "The psychological difference between the individual children in an anthropometric series and the physical type of the series is directly related to the quickness of growth."

——— Remarks on the use of anthropometrical instruments in schools. *In* American association for the advancement of physical education, 1896. p. 158–64.

In this article Dr. Porter bases his discussion on the fact that "the average or other central value of the group of properly related measurements gives an idea of the character of the group." Emphasis is laid on types, and we are told that percentile grades can not be used as yet for prediction of future size.

It is recommended that the annual record of the height and weight of every pupil be kept, and that all pupils, whose height and weight ratio is above the 75 or below the 25 percentile grade of their age, be placed under special supervision in order that they may not be overtaxed by the work required of normal pupils.

——— Untersuchungen der schulkinder in bezug auf die physischen grundlagen ihrer geistigen entwicklung. Verhandlungen der Berliner anthropologischen gesellschaft (1893). p. 337–54.

A translation of the former article.

Quetelet, M. A. De la statistique considérée sous le rapport du physique, du moral et de l'intelligence de l'homme. *In* Commission centrale de statistique. Bulletins. Bruxelles, 1860. v. 8. p. 433–67.

An anthropological discussion dealing principally with marriage and only indirectly bearing on physical growth.

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Quetelet, M. A. Des proportions aux corps humain. Académie royale des sciences, des lettres, et des beaux-arts de Belgique. Bulletin. Bruxelles, 1848. v. 15. p. 16–27.
A discussion of the Egyptians, Romans, and Indians.

——— Recherches sur le poids de l'homme aux différents ages. *In* Académie royale des sciences, des lettres et des beaux-arts de Belgique. Bulletin. Bruxelles, 1832–34. v. 1. p. 20–24.

——— Sur l'homme et le dévelopment de ses facultés, ou essai de physique sociale. Paris, Bachelier, 1836.
Pioneer work in the field of anthropometry, which studies records from the standpoint of an artist as well as of a scientist.

——— Sur les Indiens Ojib-be-was et les proportions de leur corps. Académie royale des sciences, des lettres, et des beaux-arts de Belgique. Bulletin. Bruxelles, 1846. v. 13. p. 70–76.
A brief scientific study of three Indians.

——— Sur les proportions de la race noire. *In* Inter. cong. f. sch. hyg., 1854. v. 21. p. 96.

——— Sur les proportions de hommes, qui se font remarquer par un excès ou un défaut de taille. *In* Académie royale des sciences, des lettres, et des beaux-arts de Belgique. Bulletin. Bruxelles, 1847. v. 14. p. 138–42.
A short summary with references to Ojib-be-was Indians.

Quirsfeld, E. Untersuchungsergebnisse physischer und geistiger entwicklung bei 1014 kindern vom 1. bis. 8. schuljahre. Prager med. wochnschr., 32:653–56 (1907).
Translation in International congress on school hygiene. 2d. London, 1907. Proceedings. p. 214–16.
A study of the physical and mental development in early childhood.

——— Vorträge: Zur physischen und geistlichen entwicklung des kindes während der ersten schuljahre. *In* Inter. cong. f. sch. hyg., 1904. v. 3. p. 128–34.
A careful study of physical conditions of children during the first years of school, followed by a discussion by F. A. Schmidt, E. Bayr, and Frau Dr. Krukenberg.

Ranke, O. Beiträge zur frage des kindlichen wachstums. Archiv. für anthrop., 3:161–80 (1905).
See also Der Mensch, 2:156–57.
A very careful study of about 2,500 children, with many measurements and tables.

——— Der Mensch. Leipzig, Verl. d. bibl. Instit, 1894–1900. 2v.
Chapters 2 and 3 of vol. 2 contain excellent material on growth and many tables from Europe and America. An excellent treatise.

Reuter, F. Beiträge zur anthropologie Hinterpommerns. Kindermessungen. Archiv. für anthrop., 28:288–388 (1903).
A careful experimental study based on 373 children, with many measurements, graphs, and indices.

Richards, A., *and* Little, B. B. A proposed standard chart to show the proportions of American females. *In* American association for the advancement of physical education, 1896. p. 30–34.
A detailed chart is given showing relative measurements.

Rietz, E. Das wachstum der Berliner schulkinder während der schuljahre. Archiv. für anthrop., 1:30–42 (1903). neue folge.
This investigation is based on a study of 5,134 Berlin boys and girls between the ages of 6 and 19, and includes the comparison between children from different types of schools. Twelve tables are included and one chart, with corresponding curves for the gymnasien and höhere schulen and the gemeindeschulen. A comparison is also made between the children of the better classes and the poorer classes at Hamburg, Berlin, Halle, Gohlis, Saalfield, Stockholm, Denmark, England, Boston, Turin, Warsaw, and Freiberg as outlined by Burke, but less complete, the numbers of individuals not being included.

——— Körperentwicklung und geistige begabung. Zeitschrift für schulgesundheitspflege, 19:65–98 (1906).

Roberts, C. Manual of anthropometry. London, L. Churchill, 1878. 118 p.
This is an important manual containing much anthropometric material and an extensive bibliography. The height, weight, and annual increments of 7,709 boys and men of favored class between 10 and 30 are included. There are also many other tables, one including height, weight, and chest girth of newborn infants; another of the average height, weight, and chest girth of the artisan class between the ages of 4 and 50. A careful comparison is made with Dr. Bowditch's work in Boston.

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Roberts, C. Memorandum on the medical inspection and physical education in secondary schools. *In* Royal commission on secondary schools of England. Report. v. 5. p. 352–74.

This report deals primarily with the relation of weight and height to hygienic conditions, and the death rate at various ages.

——— The physical requirements of factory children. *In* Journal of the statistical society. London, 1876. v. 39. p. 681–733.

An excellent study including height, weight, and chest girths. Comparisons are made with Quetelet's data.

Rubner, ——— Das wachstumproblem und die lebensdauer des menschen und einiger säugethiere vom energischen standpunkte betrachtet. Berlin, 1908. 16 p.

Ruschenberger, W. S. W. Contributions to the statistics of human growth. American journal of medical science, Phila., n. s. 54:67–70 (1867).

Russow, A. Vergleichende beobachtungen über den einfluss der ernährung mit der brust und der künstichen ernährung auf das gewicht und den wuchs (länge) der kinder. Jahrb. für kinderheilkunde, Leipzig, 16:86–132 (1880–81).

Sack, N. Brustdurchmesser und das körpergewicht der knaben in den höheren schulen Moskau's. Aus dem Russischen übersetzt von Prof. Dr. Erismann (1892).

——— Über die körperliche entwicklung der knaben in den mittelschulen Moskau's. Zsch. für schulgesundheitspflege, 6:649–63 (1893).

A very important study containing many references to the work of others, a bibliography, and comparative tables.

Sargent, D. A. The physical proportions of the typical man. Scribner's magazine, 2:3–17 (1887).

A semipopular article giving methods of measuring and testing in the physical education of men, with three charts which show at a glance the relation of size, strength, symmetry, and development. These charts have had great influence in laboratories for physical measurements.

——— The physique of scholars, athletes, and the average student. Popular science monthly, 73:248–56 (1908).

A study of 15 groups of men from 18 to 26 years of age, all excepting one group being Harvard students—football players, crew men, strong men, scholarship men, etc. A table of the average height, weight, and strength of each group is given, the tallest and heaviest being university crew and football men, the shortest, and lightest being "stipend scholarship" men.

——— Report on the anthropometric measurements. A schedule of measurements with directions for making them. *In* American association for the advancement of physical education, 1886. v. 2. p. 6–15.

A significant guide for the making and recording of measurements.

——— Hitchcock, E., *and* Anderson, W. G. Report of the committee on statistics appointed by the association in 1885. *In* American association for the advancement of physical education, 1888.

A comprehensive summary of what measurements should be taken and how it should be done, including detailed methods, tests, and a discussion of the conditions of the body.

Schmidt, Emil. Die körpergrösse und das gewicht der schulkinder des kreises Saalfeld. Archiv. f. Anthrop., 21:385–434 (1892).

A comparative study of the growth of boys and girls between the ages of 6 and 13 in different localities in Germany.

Schmidt-Monnard, K. Gewichts- und längenzunahme bei kindern. Zsch. für schulgesundheitspflege, 9:317–23 (1896).

A reply to "Über den einfluss der jahreszeit und der schule auf das wachstum der kinder."

——— Die chronische kränklichkeit in unseren mittleren und höheren schulen. XII Int. med. cong. zu Moskau, 1897. Zsch. für schulgesundheitspflege, 11:593–620; 12:666–85 (1897).

In an investigation made in Halle on 5,100 boys and 3,200 girls in the high and middle schools, the writer studied the chronic diseases, fatigue, etc., in respect to effects, and growth in height and weight in individual children through the fourteenth year.

——— Über den einfluss der jahreszeit und der schule auf das wachstum der kinder. *In* Jahrb. für kinderheilkunde, 1895, v. 40 (1895).

Summary in Zsch. für schulgesundheitspflege, 7:626–628 (1894).

A study of the growth of 190 children from Halle, with yearly measurements from 1 to 13 years.

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Schultz, G. Bericht über die messungen an individuen von verschiedenen nationen. *In* Académie impériale des sciences de St. Petersburg. Bull. d. I. classe physico-mathématique. 1845. v. 4. p. 226–30.

A comparative study of 63 Russians, Jews and Negroes.

——— Some new anthropometrical data. Yale medical journal, v. 2 (1895–96).

Schuster, E. First results from the Oxford anthropometric laboratory. Biometrika, 8:40–51 (1896).

Schwartz, E. Anthropology (Novara expedition). A system of anthropometrical investigations as a means for the differential diagnosis of the human races. Vienna, 1862. 24 p.

Seaver, J. W. Anthropometry and physical examination, for practical use in connection with gymnasium work and physical education. Meriden, Conn., Curtis-Way co., 1909. 191 p.

This is an important contribution to the general subject of anthropometry and contains 15 chapters on various anthropometric subjects. Chapters 7, 8, and 9, in graphic anthropometry, the law of growth, and percentile methods of tabulation, are particularly good. A number of important charts and tables are included.

——— Anthropometric tables arranged from the measures of 2,300 students. New Haven, 1889.

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"The real problem in studies of growth is the determination of the annual increments during the period of growth for each degree of adult stature. Until we have sufficient measurements to tell us how the tall men and likewise the short men grew in boyhood, we can form no idea of the significance of any given part of the growing period. Thus far our knowledge of growth, as determined by physical measurements of children, is based on average statures obtained by single measurements of large groups of children. We thus gain a certain general curve of growth from which we infer certain tendencies to periodic growth. In all such measurements we have ample means for determining the variation between individuals at each period of life, but no way of estimating the degree of variation in the same individual from year to year. Thus, while we know that the average maximum increase in the stature of boys occurs about the fourteenth year of life, we have no means of knowing how many boys reach their maximum before or after this point."

No imprints of these tables (a, b, c, d, e) were made and the data are inaccessible.

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——— (b) Statistical tables, showing certain measurements of 40 freshmen of Wellesley college at the beginning of November, 1891, and the end of May, 1892, after six months of gymnasium training. (1892.) (No imprint.)

——— (c) Statistical tables concerning the class of 1891 of Wellesley college, numbering 104 women. (No imprint.)

——— (d) Six comparative tables showing records of class crews receiving training in gymnasium and on the lake; of 20 students receiving training in the gymnasium; and of 20 students receiving no training in the gymnasium. Wellesley college. President's report. Boston, 1893. p. 35–40.

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BULLETIN, 1914, NO. 11 - - - - - - - - WHOLE NUMBER 584

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, June 20, 1914.

SIR: Among the greatest needs of the rural schools of the United States is that of better houses. Most of the older houses are cheap, ugly, uncomfortable, insanitary, badly ventilated, poorly heated and lighted, with no conveniences for school work, and with inadequate and filthy toilets and privies, or with none. In many places abandoned churches and cabins no longer fit for use as homes are given over to the schools, somewhat as outgrown, outworn, and cast-off clothing is given to paupers.

Since the beginning of the recent revival of interest in rural schools millions of dollars have been expended annually for country schoolhouses, and expenditures for this purpose have grown larger from year to year. Some of the newer buildings are large and relatively costly, but many, probably most, of them are built with little or no reference to architectural appearance, to the local needs, or to the principles of sanitation and the health requirements of growing children.

Schoolhouses are not only the temples which we erect to the god of childhood; they are also the homes of our children for a large part of the day through the most plastic years of their lives, the years in which they are most responsive to impressions of beauty or of ugliness, and when their environment is, therefore, most important. These houses should, therefore, be planned and built not only with the feeling of reverence with which all temples and other sacred buildings are erected, but also with that care for health, comfort, and convenience which we exercise in the building of our homes. It is economic waste of the worst type to spend annually hundreds of millions of dollars in money for schools and hundreds of millions more in the time of children and then fail of the best results because of bad construction and poor equipment of schoohouses. It is worse than economic waste to destroy the health and lives of children through failure to observe simple and well-known sanitary laws. The places to which children come to gain preparation and strength for life and its duties should not prove to be hotbeds for the seeds of disease and death. The school improvement leagues of the Southern

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States have taken for their motto—"For our schools: Health, Comfort, and Beauty." This might well become the motto for all who have to do with the planning and building of schoolhouses.

Within the last twenty-five years there has been a remarkable improvement in the school buildings of cities and large towns and in the buildings for county and township high schools. Many of these now approach the ideal. A bulletin of this bureau, *American Schoolhouses*, issued in 1910, has had a wide circulation and has proved very helpful to school boards and architects. The eagerness with which it was received, and the continued requests which come to this office for it, indicate both the need and demand for it. There has been an even greater need for similar help for school officials and others responsible for the building of schoolhouses of one, two, three, or four rooms in rural communities. To give this help the manuscript transmitted herewith has been prepared by Dr. Fletcher B. Dresslar, special agent of the Bureau of Education and professor in the George Peabody College for Teachers, Nashville, Tenn., with the cooperation of the joint committee of the National Council of Education and the American Medical Association on health problems in education, which committee accepted the material of this manuscript and submitted it as its report to the National Education Association at its meeting in Salt Lake City on July 7, 1913. The manuscript is the result of careful and prolonged study of rural school architecture with constant reference to economy and the highest degree of utility. I recommend that it be published as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

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INTRODUCTION.

[Report on Health Problems by a Joint Committee of the National Council of Education and the American Medical Association.]

In 1911 the National Council of Education appointed a committee on health problems in education. From the time of its appointment this committee has worked in cooperation with a special committee of the American Medical Association, and the fund available for the work of these health committees has consisted of small appropriations from the National Education Association and an equal amount appropriated each year by the American Medical Association.

At the meeting of the department of superintendence of the National Education Association, held in St. Louis in February, 1912, a general report on health problems in the schools of the United States was presented and discussed.

At the meeting of the National Education Association in Chicago, July, 1912, the topic "Sanitation of Rural Schools" was selected for the two committees mentioned for their special study.

During the spring of 1913 a field secretary, employed by the two committees acting as a joint committee, made a careful statistical and photographic survey of about 100 rural schools in four Eastern States. This information has been placed at the disposal of Dr. F. B. Dresslar, to be used, in addition to the extensive body of material which he has gathered, in the preparation of a special bulletin on country schoolhouses.

The following general propositions have been approved by the joint committee of the National Council of Education and of the American Medical Association:

It is the conviction of the joint committee that there is no more important health problem in education than that which relates to the sanitation of the rural schools.

The one-room country school is the oldest and most primitive type of school in this country.

More than half the school children of the United States are educated in rural schools.

The country-school child needs a healthful environment quite as much as the city child.

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In general, good architecture and good sanitation have been much more carefully studied and much more frequently secured in the school of the city than in the school of the country, but the sanitation of the rural school is in every respect as important as the sanitation of the city school.

The problems are at bottom identical. Both the city child and the country child need fresh air and good light and clean, wholesome, and attractive surroundings; but the methods of securing these educational essentials are somewhat different in city and country.

A schoolhouse without an adequate playground is an educational deformity and a gross injustice to childhood.

Neglect of anything essential for health in construction, materials, arrangement, and equipment of the country-school building is an educational sin of omission, if not a social and civic crime.

The expense of the things which really affect the health of the pupil in school should be estimated in terms of child life, child health, and human efficiency, and only for convenience be reduced to dollars and cents.

The following features are considered most important for satisfactory sanitation of the rural school:

I. Good air.

(*a*) Supplied abundantly from outdoors in all weather.

(*b*) Not warmer than 68° F. in cold weather.

(*c*) Heated (but not overheated) and kept in moderate motion by the operation of a jacketed stove or a properly arranged furnace heater.

Outdoor air is the most valuable tonic known to man, and acts constantly not only through the lungs, but as a continuous air bath affecting the entire surface of the body. Ventilation is therefore the most important feature in the sanitation of the school. A vitiated atmosphere lowers the vitality, increases the susceptibility to and the severity of disease, and decreases the physical working power of the individual. Although it does not produce sudden death, it inevitably shortens life.

II. Cleanliness.—Cleanliness not only exerts a powerful influence upon physical health, but also produces important effects almost directly upon minds and morals.

III. Water, pure and abundant.

(*a*) Water should be as free, as health-giving, and as available as the air.

(*b*) A sanitary drinking fountain should be furnished in every rural school.

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IV. Disposal of sewage.—Provisions for toilet accommodations and sewage disposal in every rural school should satisfy all essential sanitary requirements.

V. Lighting.

(*a*) Light should be abundant and effectively controlled.

(*b*) Windows should be located at left or at left and rear of the schoolroom; they should extend to the ceiling and provide a lighting area equal to one-fifth to one-fourth of the floor area.

(*c*) Light should be controlled by double shades.

(*d*) Direct sunlight should have access, if possible, to every schoolroom some time during the day.

VI. Hygienic furniture, books, and materials.

(*a*) Desks and seats, whether fixed or movable, should be individual, separate, adjustable, clean.

(*b*) Books and other materials should not only be sanitary, but should be attractive enough to stimulate a wholesome response from the pupils.

VII. Screening against insects.—Mosquitoes may convey germs of malaria and yellow fever. Flies may convey germs of typhoid, tuberculosis, infantile paralysis, and perhaps other diseases. Fleas may convey bubonic plague. Ticks may convey Rocky Mountain fever. Every schoolhouse and privy should be effectively screened against mosquitoes and flies.

VIII. Location, site, surroundings, and grounds.

(*a*) With reasonable regard for the geographic center of the community, the rural school should be located on a site that is (1) well drained and away from stagnant water; (2) free from troublesome noise, unpleasant outlooks, or air contamination; (3) protected, so far as possible, from unfavorable weather conditions.

(*b*) School grounds should provide sufficient space for play and games.

IX. Cooperative work.—Sanitation of the rural school requires not only a healthful building and well-kept grounds, but intelligent and conscientious cooperation on the part of teacher and pupils for the preservation and improvement, where possible, of all the health values in the school and the school surroundings.

X. Social and moral welfare.—The arrangements and equipment of the rural school should not only conserve in every vital way physical health, but should also favor in all fundamental particulars the social and moral welfare of all the pupils. The rural school is the most effective agency for influencing all standards of country life.

The following are some of the reasons for the present deplorable conditions in rural schoolhouses:

(*a*) Low architectural and sanitary standards in rural regions generally throughout the country.

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(*b*) Ignorance regarding the physical and moral effects of unattractive and insanitary school buildings upon the children and upon the community as a whole.

(*c*) False economy expressed by local school boards in failure to vote enough money to build and maintain suitable school plants.

(*d*) Lack of State supervision or assistance, which is usually necessary to maintain desirable standards.

Some important influences that are effective for obtaining and preserving the sanitary and other valuable features of rural schools are suggested:

(*a*) Assistance of the United States Bureau of Education and of the State departments of education in furnishing plans and instructions for construction and equipment of rural school buildings. The Bureau of Education in Washington is already supplying on request help of this kind, and a few State departments are demonstrating what may be done by supervision and support which aids without restricting.

(*b*) Supervision of rural schools by State departments of education with power (1) to condemn insanitary and wholly unsuitable buildings; (2) to give State aid to rural schools when the local authorities fulfill certain desirable and reasonable conditions.

(*c*) Inculcation of high standards of school sanitation in the minds of both local school patrons and of school authorities who control school funds and who administer the affairs of the schools. Public lectures in the schoolhouses on health topics.

(*d*) Introduction of effective school health courses in normal schools and teachers' institutes. Better education of rural school teachers, county superintendents, and rural school supervisors in the principles and practice of school hygiene and sanitation.

(*e*) Arousing the enthusiasm of rural school pupils for the improvement and care of everything in the school and its surroundings that affects health and happiness. Development among pupils of organizations such as "Pupils' boards of health," "Civic leagues," and "Health militias," for actual constructive effort.

(*f*) Cooperation with the rural school of organizations like the granges, women's clubs, county medical societies, and other groups so situated that they may further the cause of health and efficiency in the school.

(*g*) Popular education by attractive and reliable health information in the public press.

(*h*) Introduction of social demonstration of sanitary school standards and improvements by voluntary or paid demonstrators.

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The two health committees acting as a joint committee express their appreciation of the valued counsel and cooperation of the United States Bureau of Education.

This bulletin has been approved and adopted by the joint committee as its general report on "The Sanitation of Rural Schools."

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RURAL SCHOOLHOUSES AND GROUNDS.

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Chapter I.

SOME CONDITIONS AND OPPORTUNITIES IN RURAL LIFE.

The main purpose of this bulletin is to offer suggestions with reference to the construction of rural school buildings, especially from the sanitary and educational point of view. Before discussing the main topic, however, it is desirable to consider briefly the rural school as it should relate itself to the community, for the nature of this relation will have definite bearings on the size of the grounds, the construction of buildings, and their general utility.

Rural life in the United States is in many respects different from that of any other country and especially that of continental Europe. There is probably more isolation in farm life in this country than in any other progressive country of the world, unless it be in parts of the Canadian northwest. The European farmer lives, as a rule, in a village and goes to and from his farm daily. The village church, the public garden, and the public halls give him opportunities for society and fellowship during his leisure hours. Cooperation, companionship, and social solidarity bring satisfaction and contentment. Such opportunities are not to be had in many of our rural communities at any cost.

The houses of most American farmers have not resulted from careful planning, either with reference to beauty or convenience, and least of all with due regard to the joys of life. They were built to meet temporary needs. Habit has fastened upon our rural communities such types as were thus developed, and these types persist long after the financial ability to build better and more beautiful homes has been acquired. It is not more expensive houses that are needed, but more intelligently planned homes, those which will contribute greater joy, comfort, and healthfulness to the family. Many farmers have made the blunder of building expensive houses with little thought and less planning for the essentials of beauty, comfort, convenience,

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and pleasure. One farmer of this type, after saving and adding to his original farm until he owned 800 acres of very valuable land, recently built a big house. The house has no bath rooms, no central heating plant, no labor-saving methods of lighting, no water supply, no kitchen conveniences, no sleeping porches, no sanitary toilets, no laundry. Is it any wonder that his sons have gone to town to work in a shop or that his only daughter has preferred the life of a stenographer? A library was not thought of; opportunities for games and recreation never entered into consideration; and yet the amount of money expended in the construction of this house would have purchased these things and a more beautiful and usable house as well.

Many country people have failed to grow away from unhygienic practices about the home simply because there were no near neighbors to object to unwholesome conditions. Conditions wholly permissible, and even good, in a sparse settlement may become highly undesirable with the presence of greater numbers. The fact that there are few neighbors to view his back yard has kept many a farmer oblivious to the educational and moral significance of cleanly surroundings.

Here is a whole series of problems to which the country schools should address themselves. It will be a better sort of education for the children to use part of their time in considering how the farm home may be made more attractive, satisfying, and sanitary, than to use all their time on subjects which touch their life only incidentally.

On the other hand, farm life in our country has many elements of strength in it, and upon these elements we must build. In general it is a healthful life. Fresh air, hard work, with rest days scattered all through the year, plenty of food, and direct contact with nature have produced strong bodies possessing great resistance. The evil habits of dissipation have not fastened themselves upon country people as a class; and, despite many insanitary conditions, the death rate in the country districts is probably lower for all contagious diseases save four (typhoid fever, hookworm disease, influenza, and whooping cough) than in the cities. Vigorous health is the most effective weapon with which to fight against disease.

The claim has been made that the highest type of character can not develop in the country; that the stress and strain of city life are needed to purify, refine, and spiritualize. Be this as it may, it is certainly true that the foundation upon which the highest types of human character can be developed requires the training and development incident to life in the country. No foundation for learning and character is safely builded if it does not include in its elements that first-hand knowledge of nature and things, that many-sided training in practical affairs, and that all-round physical development which

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country life emphasizes in such a positive and natural way. Most of the men and women who have enriched our national life and whose memories we revere have had just such early training and development as our country life afforded. On this basis of insight and initiative they were able to enter into the life of a city and utilize its special opportunities, and yet abstain from its degrading influences.

It would be false, however, to attempt to picture country life as free from all difficulties and discomforts, or to imagine that the only thing necessary to get the most out of life is to go to farming. The best of all things have never been brought together at any one spot nor included in any one calling. Many things which the city has are vastly superior to anything of like kind in the country; but it is just this need for bettering conditions that should stir all who are really seeking to reveal to our rural communities the possibilities of country life. Country life must be made more enticing, more beautiful, and more joyous.

The field of service of the country school must include the general needs and longings of country people. The rural schools must set themselves to the task of creating a more satisfying educational fellowship in country communities. They must bring people together for the sake of comradeship and for the sake of community interests. They must teach the economic, social, hygienic, and religious importance of civic unity and civic righteousness. They must make it plain to all the people that this is an age of cooperation and that we can not live unto ourselves without limiting our own happiness and endangering the success of others.

The public school is the only institution in which all are interested and through which all may cooperate. The schoolhouse door must swing open freely for all who would work for the public good, and the schoolhouse must be so constructed as to invite to its shelter all who seek for a larger vision in anything and everything that may contribute to the community welfare. Above the door of every rural schoolhouse in this land some such legend as the following should be inscribed and through the work of patrons and teacher its sentiment be woven into the fiber of the people: *This building is dedicated to the service of this community and to the common cause of a better life for all.*

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Chapter II.

RELATION OF THE COUNTRY-SCHOOL PROGRAM TO THE COUNTRY-SCHOOL EQUIPMENT.

It is clear from even the brief analysis of country conditions in the preceding chapter that the rural school has before it a larger and more purposeful program than it is now undertaking. There are opportunities for a new and difficult service, and these must be seized and utilized effectively if the country school is to measure up to the needs and demands of a prosperous and satisfying country life. What, then, are the requisites for the realization of this preparation for worthy service?

THE TEACHER.

1. Teachers for rural schools should be better and more specifically prepared for their work. A sad mistake is made both by the State and the community when the intellectual and moral guidance of the children is intrusted to those who themselves have gone little further along the paths of learning than the more advanced pupils whom they are called to instruct. A teacher whose knowledge of the facts and processes of learning is meager and sterile can not bring to any community, especially to a rural community, that lively interest and enthusiasm which will thoroughly commend her work. Before the rural school can reach its highest usefulness the standard of scholarship demanded by the State for teachers of such schools must be raised so that they will have at least a wider and more critical knowledge of the common branches of learning. But there are other important considerations in the preparation of a rural-school teacher. He or she must know more about country life and country work. A girl brought up in a city, educated in a city, and adjusted to city life, has no real understanding of the problems of a country school. The general custom of making rural schools in effect training schools for those who aspire to teaching as a profession is most unfortunate.

The normal schools of the country are partly to blame for this condition. Very few of them attempt to address themselves to the specific task of thoroughly preparing teachers to meet in a large way the responsibilities of the work of teaching in a rural school. Of late many normal schools, instead of wisely deciding to limit their endeavors to the preparation of elementary teachers, are dividing

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their energies, mixing up their curricula, and spreading their work over such varied fields that nothing intensive and specifically vital is done. In general, normal schools should not undertake to train teachers for both secondary and elementary schools. They should devote their time either to high-school work or to elementary-school work, exclusively. Some normal schools in every State ought to give their time and efforts strictly to the training of rural-school teachers, and their whole curriculum should be centered about the needs and opportunities in rural schools; others should devote their time to the training of teachers for city schools; and still others, if there exists no better agency for this purpose, should dedicate their energies to the work of training teachers for secondary schools.

It has been said that one brought up in a city and thoroughly adjusted to city life has no real understanding of the problems of a country school. On the other hand, when such persons have specific training for country-school work and are possessed of ability to make the most of their environments, they are often more efficient than those born and reared in the country. The latter are habituated to the routine of country life, and they are often thereby prevented from seeing things from a different point of view. City experience and the educational and social refinements generally associated with it will be of very great service if, in addition, life in the country is thoroughly understood and its spirit appreciated.

The purpose here, however, is not to outline in detail all that a country-school teacher should know about country life, but merely to call attention to those phases of her preparation that have a bearing on the sort of schoolhouse and grounds that must be furnished for her.

The rural school teacher should have a liberal knowledge of the science and art of agriculture, for this is the paramount economic interest in the country. A thorough and practical knowledge of agriculture will help a teacher who has any power of imagination to see things not as they are, but as they should be. Whenever a country-school teacher says, "This community is so backward and so set in its ways that I can do nothing" she shows that she is not liberally educated in the best sense of the term. The chief trouble with the teaching of agriculture in our country schools is that the teachers know next to nothing about the real thing. They may have a smattering of book knowledge, but if they have no power to apply it to the conditions in their community their knowledge will count for naught. There are teachers who can talk volubly of the growing of corn, but who would be unable to select the best ear from a bushel, or to test, in any conclusive way, its germinating power. There are teachers who can expatiate on the value of leguminous plants but who could not, in the open, distinguish alfalfa from ragweed.

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On the assumption that it is possible to get teachers who do know, how can they successfully teach agriculture in a country school with no ground to prepare or to cultivate? The average country-school lot is not one-tenth large enough, and even school lots that are large enough are generally ill-adapted to agriculture. A few teachers have had sufficient imagination and initiative to rent or borrow a plat of land adjoining the schoolhouse and to do some real farming and teaching thereon.

Three acres of arable land connected with a rural school could be made to pay a good profit, not only as a laboratory for teaching purposes but in actual money returns. The reader is possibly saying to himself: "This is all theory, for crops must be made during vacation, and then the teacher is gone and there is no one to look after them." But suppose the teacher has impressed the people with the fact that she knows, and is there for a real purpose besides drawing her salary? She will then spend part of the winter months determining what is best to do with that plat of ground; what will give the best educational and financial returns to the community; what preparation the soil will need; and what seeds are to be selected and tested. Suppose she thus plans during the winter the work and cultivation to be carried on during the vacation, makes out a definite program, and then appeals to the larger boys and girls and also to the men and women of her community to volunteer to carry out the work as directed? Here is a chance for a new kind of "Corn club;" a chance to work for the common good and not simply for one's self; both kinds of club are needed. Here is a chance also for a community "Tomato club" to be undertaken for the benefit of the school and with resultant benefit to the individual. Each of these cooperative efforts could and would bring social contacts and social pleasures of the kind the country needs.

There is a rural school "farm" in North Carolina where a plan very similar to the one here suggested has been of such influence on the neighborhood that young women who had never before thought of working in the field entered into this sort of community labor with great zest and with a sense of new-found joy.

"What will you do with the money from school crops?" Devote it to the interest of the school. Buy baseballs, tennis rackets, and tennis balls; paint the schoolhouse; build sanitary toilets; build a neighborhood clubhouse; buy a piano or an organ for the school; buy books for the whole community to use; equip manual-training and domestic-science rooms; lengthen the school term; increase the teacher's salary.

All this has been said mainly for the purpose of reenforcing the appeal for larger and better grounds for rural schools from the point of view of social service and of the actual needs of community teach-

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ing. There are other reasons why school grounds should be larger; these will appear in the chapter on the location of country schoolhouses. It is enough to indicate here that even if we had teachers specifically prepared to do what the country schools need, neither the grounds nor the buildings are adequate. A new and broader purpose for country schools demands a new sort of equipment in grounds and buildings, and it is hoped that this bulletin may suggest at least some of the necessary changes.

THE CURRICULUM.

2. The fundamental tools or implements of education are comprised in a knowledge of reading, writing, and mathematics, and a good control of the mother tongue. All the rest may be acquired by use of these and by orderly observation. One who can not count and calculate with precision is unable to deal effectively with the results of his observation. One who can not read, write, and spell is debarred from entering into the heritage of his own literature—moral, scientific, religious, æsthetic, or philosophic.

Despite all the attacks on the country-school curriculum, the essential tools for educational progress are generally comprised in it. Note that these fundamentals are called tools. A tool always implies material upon which it may be used. A knife would be meaningless if there were nothing to cut. Arithmetic would be equally useless if there were nothing to count and no numerical relations to calculate. It would be a poor policy for a joiner to instruct his apprentice simply in the manipulation of saw, chisel, or square rather than to teach him the use of these tools through the cutting, shaping, and fitting of timbers designed to serve a real purpose in life. Every country schoolhouse should have a workshop where boys and girls can put to test their arithmetic and reading and drawing and all the other educational tools which they are supposed to learn to use.

Here is a problem that will teach more real arithmetic, or at least make this subject more actual and interesting, than all the puzzles found in the regulation textbooks: "What will it cost to build in this community the sort of a barn needed on a good farm of 100 acres, with 75 acres under cultivation?"

This is a practical problem for a country boy. Before answering it he will first have to make drawings and plans for the barn. These drawings and plans will represent, if he goes at the problem intelligently, all his knowledge and ideals of that part of farm life which must center in or about a barn. He will have to determine how many horses it would be best to keep, and how they should be housed. He will need to consider the number of cattle such a farm will need, and how best to care for them. Problems will arise in con-

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nection with the amount of storage space needed for hay and grain and with the proper location of rooms. He will need to figure on shed room for wagons, and farm tools of all sorts, and to consider how these can be cared for with the least trouble and the greatest economy. He will be forced to give thought to the building location, to the water supply, to the care of the compost, and to all the included hygienic relations of the home. All this will require calculation of the most painstaking sort. But he has not yet begun to build. When his plans are matured he will need to figure out the amount of material needed and the cost in the local markets of this material. Here questions of local economics will come into prominence. The price of labor, skilled and unskilled, the expense of hauling—all of these will enter into the calculation. He will find before he has finished that he has in these and in a score of other ways been brought face to face with the whole problem of the farm and home life that centers about the barn.

A teacher who sets such a problem should know many things of practical importance to farm life not learned in the schoolbooks. She will be greatly aided in making such work interesting and helpful if she has gathered many suggestive plans and descriptions of farm barns and of the common conveniences which ordinary ingenuity may suggest and construct.

The arithmetic and other subjects involved in the solution of this problem might be extended to the planning and construction of a house. Here the girls will be more interested. The planning of a convenient, beautiful, and sanitary home is about the last thing thought of in our rural-school curriculum. But the farmhouse is one of the most important factors in country life. Here is the center of family life, for good or evil. Here conveniences, sanitation, and comfort pay the highest dividends. The farmhouse need not be large and expensive. It may be beautiful, sanitary, and convenient, oftentimes at less cost than otherwise. A log house can be made beautiful, sanitary, and convenient if those who plan know that beauty and health are fundamental, and that it is not necessarily expensive to meet these demands.

There should be a collection of suggestive plans for all grades of country houses in the libraries of country schools. These can be gathered from magazines, post cards, photographs, and drawings made directly from successful houses. They can be made intensely interesting to the larger boys and girls, and through them much of the theoretical work of the curriculum can find application.

All this suggests certain needs in school buildings. If there are no good places for drawing, for making plans, or for working up such plans into models, it is almost impossible for the teacher to follow the line of work suggested above. Therefore, when the appeal is made

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for workrooms and libraries in this bulletin, the reader will understand that this is done in order to hasten the time when this larger program for country schools can be successfully undertaken. With a building planned to meet these suggestions, many other adjustments helpful to both teachers and children will be easily made.

THE TEACHER'S HOME AND FARM.

3. The time is coming when the people will learn that it pays to hire competent men as teachers of country schools and to furnish them homes on the school grounds. Then a real experimental school farm will be easily managed and all the needs of the community can be centered in a school curriculum. It would be easier to arrange for consecutive and constructive work when conditions are such that a country teacher can see the possibilities of a useful and prosperous life ahead. To allow the schoolhouse and school grounds to lie idle all summer and to depend on young and inexperienced teachers for the educational leadership of the community is poor economy. The one paramount need in most rural schools is a teacher with ideals and with the desire to focus the attention and interest of every man, woman, and child in the district on the work done in and about the schoolhouse.

Suppose there is a small school farm, a home for the teacher, and a building arranged to accommodate the intellectual and social needs of the community, what could a virile man in charge, employed for the year instead of for a few months, do under such conditions? He could make the farm pay half of his salary and at the same time make it the most effective teaching agency connected with the school. He could develop a community interest and pride in the school now sadly lacking in most country districts. He could be the social guide for all the young people, those out of school as well as those in school. If he were musical, and most certainly he ought to be, he could develop some sort of a neighborhood orchestra and chorus which would furnish an incentive and a means of entertainment for all religious and social gatherings.

The village schoolmaster of Germany has a house and garden on the school grounds. He settles there for a life's work and is, next to the priest or pastor, the most influential and useful man in the village. But he must have had a thorough training in all the things that will make for joy and happiness in that community. First, he must be a good musician. He must be able to play the violin and the pipe organ, and in addition he must be able to sing and conduct an orchestra and a chorus. This does not mean that he must be able to do these things in a mere passable fashion; he must be a skilled musician. During the many years of his special train-

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ing as a teacher his musical studies are carried on in a most exacting way, and if he fails to develop good ability he will not receive an appointment as a village schoolmaster, even if all other requirements are met. What is the result? He has an orchestra made up of old and young people in school and out of it. He is the leader of the church choir and of congregational singing. His help is demanded wherever music is desired. It would be almost impossible to overestimate the influence his musical ability gives him with his people.

In the United States we can not move our isolated farmhouses into villages, and it is doubtful if the work of our country schools can be made as effective in this way as that of the village schools of Germany. But as long as we neglect to give the country people the uplifting and harmonizing influence of music, so long will it be more difficult to unite a community into a social and civic body. Music is preeminently a social art, and is most satisfying when enjoyed in common.

If we could have larger school grounds, a school farm, a home for the teacher, and an all-year-round social and educational center in the community, there would be fewer desertions from farm to city.

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Chapter III.

HYGIENIC CONDITION OF TYPICAL RURAL SCHOOL-HOUSES AND GROUNDS.

In investigating the hygienic conditions of typical country schoolhouses in 18 States, the following method was used: With the cooperation of the State superintendents, two typical progressive counties in each State were selected. To the teachers of the rural schools in these counties the following personally addressed letter and list of questions were sent:

[LETTER TO RURAL SCHOOL TEACHERS.]

The United States Bureau of Education is very desirous of getting reliable information concerning the hygienic condition of typical country schools and asks your cooperation in the work. Two counties in your State have been designated by your State superintendent from which this material is to be gathered.

Please fill the inclosed question form as carefully as you can and return it in the envelope inclosed, which requires no postage. Get one or two of your larger boys or girls to help you to do the measuring and calculation required. They will enjoy it, and it will do them more good than an ordinary lesson in arithmetic. Make your answers as clear as you can, yet short. If you have a photograph of your building, or can get one, it would help us very much if you would send us a copy. The bureau is planning to publish a bulletin on country schoolhouses and is hunting for all the good features available. If you desire it, a copy of the bulletin will be sent to you when ready.

Please answer the questions fully, whether your conditions are good or bad. No individual answers will be published, and neither praise nor blame will appear charged to any persons or locality. We simply want the facts as they are, and we trust that you will help us immediately.

SURVEY OF THE HYGIENIC CONDITION OF RURAL SCHOOL, DISTRICT NO. ...., COUNTY OF ....., STATE .....

SURVEY MADE BY ....., *Teacher.*

School grounds: Length, ... feet; width, ... feet.
Size of playground, ... square feet; space for garden or agricultural work, ... square feet.
Ground: Level? .....; rough or hilly? .....; well drained? .....; trees? .....
Building: Wood? .....; brick? .....; cement? .....; stone? .....; new? .....; old? .....
Size of schoolroom: Length, ... feet; width, ... feet.
Light from one side? .....; two sides? .....; three sides? .....; four sides? .....
Toward what direction do the windows face? East? .....; west? .....; north? .....; south? .....
From what sides do your pupils get light? Left? .....; right? .....; rear? .....; front? .....
What is the total area of all the windows? ..... square feet.
Floors: Single thickness? .....; double? .....

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Blackboard: Area, ... square feet; where placed? .....; height from floor? .... feet; of what material? .....
Are the desks single? .....; double? .....; adjustable? .....; sufficient in number?.....
Have you window shades? .....; what color? .....; do they run up from the bottom or down from the top? .....
What is the color of the schoolroom walls? .....
Have you cloakrooms? One? .....; two? .....; none? .....
Briefly describe any special means you employ to secure ventilation.....
Have you tested the eyesight of your pupils? .....; if so, by what method?.....
Have you tested their hearing? .....; if so, by what method? .....
What is your water supply? From well on school ground? .....; from spring? .....; how far distant? .....
Do you consider your water pure? .....; are you furnished drinking fountain? .....; individual cups? .....; or two cups for all? .....
How do you heat your schoolroom? Common stove? .....; jacketed stove? .....; where located? .....; do you burn wood or coal? .....
Do you have special janitor service? .....
Do you use dry sweeping? .....; sprinkle floor with water? .....; scatter damp sawdust on floor before sweeping? .....; use any prepared dust-gathering material? .....; are your floors oiled? .....; do you use a feather duster, or dust cloth, to keep the furniture clean? .....
Do you have a thermometer? .....; what temperature do you strive to maintain in your schoolroom? .....
At what hour do you begin school in the morning? .....; at what time do you dismiss for the day? .....; how much time do you give for recess in the morning? ..... in the afternoon? .....
Toilets: One? .....; two? .....; none? .....; are they protected against flies? .....; are they made with deep excavations? .....; no excavations? .....; septic tank disposal? .....; washout system? .....; how far are they from the well, if you have one? .....
Do you do any of your regular school work out of doors during pleasant weather? ....
Do you have medical inspection of your school children? ..... If so, how is it managed? .....
Has any provision been made in your county or township for the care of the teeth of school children? ..... If so, describe it. .....
Do you wish a copy of the bulletin on country schoolhouses when completed? .....

These questions were sent to the teachers, instead of to the county superintendents, for two reasons: First, the questions required more specific and definite facts than a county superintendent could ordinarily command; second, it was hoped that through these questions many suggestions would be lodged in the minds of the teachers and that thereby some good might be accomplished in addition to getting the facts.

In all, 3,300 letters and lists were sent out, and about 50 per cent of all these were filled out and returned. The results here presented were tabulated from 1,296 returns, typically representative of the 18 States. Naturally, some who replied did not answer all the questions; hence, the figures for the different topics vary slightly.

GROUNDS.

Out of 1,245 returns giving figures regarding the area of school grounds, 727, or more than 58 per cent, reported less than 1 acre, and nearly half of this number, or 321, had only ½ acre or less. Only 124 of all these schools were furnished with grounds equal to 2 acres or more. Clearly the movement to adapt rural schools to rural life will

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amount to very little unless our rural schools are furnished more ground for their needs. It seems foolish to expect any sort of worthy teaching of agriculture to emerge from our district schools under the conditions shown.

With regard to the character of the ground as represented by the returns, it seems that of 1,283 rural schools of this group, 1,030 have comparatively level land, and that 253 are situated on hilly, rough land. About the same proportion of school grounds, or 1,014, are reported as well drained, and 234 are wet and undrained. There are one or more trees on the lots of 930 schools, while 340 schools report no trees at all. The returns do not show whether the trees reported are mainly natural forest trees or whether they have been planted—probably the former.

Measurements of the school grounds were taken in feet and have been reduced to acres in making the tabulation. The reason for asking for returns in feet was to forestall guessing as to the size of the school lots. It should be remembered also that the dimensions given include the ground upon which the building is situated, as well as that about the building.

THE BUILDINGS.

In order to get some composite notion of what a rural schoolhouse is at this date, the request called for returns on the material of which the buildings are made. Wooden buildings number 1,134, or 91 per cent; 110, or less than 9 per cent, are of brick; 37 are built of stone, and 7 of cement. Of the total number, 464 are listed as new buildings, and 805 are tabulated as old. More than 63 per cent of the buildings included in this survey are old, and a little less than 37 per cent are new. But the term "new building" does not in any sense of the word mean buildings constructed according to modern demands of school hygiene. The hatchet-and-saw carpenter of the country is generally unable to read architects' drawings or to follow specifications. Rural schoolhouses are, for the most part, attempts to copy some existing school in the township or county. Therefore, "new buildings" are generally very little better adapted to their purpose from many points of view than old ones. Especially is this true in the older sections of the country.

LIGHTING.

When we attempt to look on the inside of rural school buildings, the following significant facts come to light: Only 25 classrooms out of 1,244 received light from but one side; 880 from two sides, 346 from three sides, and 35 from four sides. In other words, about 2 per cent of the buildings under consideration received the light from

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one side. The prevailing custom, representing over 70 per cent, is to have light from two sides. But this tells less than half the story of the lighting of the school rooms. Fourteen per cent have less than one-tenth as much glass area in the windows as floor surface within the room. A little over 46 per cent have an area of glass surface between one-sixth and one-tenth as great as the floor surface. Combining these, we are able to see that more than 60 per cent of all the rural schools included in this survey have an insufficient amount of glass surface to furnish proper lighting, even if the windows were properly placed in all particulars.

Under a separate heading, facts were gathered relative to the proper use of window shades, and, although the returns are not sufficient to justify a final decision, it is plain that in the great majority of schools the shades are badly placed and can not be easily adjusted to suit conditions. To sum up then, investigation of the lighting problem shows that windows are often wrongly placed; that insufficient glass surface is furnished; and that the best arrangement of window shades is not often found. It is probably not far from the truth to say that classrooms in rural schools receive only about one-half the light they should, and that even this light is improperly distributed.

FLOORS.

With reference to the floors of school buildings, the returns show that a little less than one-half (611) have single floors, and that the rest have some form of double floors. The importance of double floors for school buildings in any part of our country needs to be emphasized. Naturally, in cold climates double floors are more necessary; yet even in the South, during periods of sharp weather, children are likely to suffer from cold. It is almost impossible to equalize the heat in schoolrooms during cold weather if the floors are not practically air-tight. A warm room acts as a sort of exhaust to gather drafts of outside air from all directions, especially up through the floor, and therefore the temperature at the floor line, unless the floors are double and properly deadened, will almost invariably be several degrees lower than at the breathing line. This is one of the reasons why children and teachers complain when the thermometer goes as low as 65° at the breathing line. If the floors are properly protected and the heat of the building is properly distributed, it would be comparatively easy to reduce the temperature in most of the schoolrooms without objection, and to gain thereby from the point of health. Many of the rural schools reporting single floors are not only uncomfortable, but dangerous in cold weather, because of the drafts and the dust brought up in this way.

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JANITOR SERVICE.

As to the methods of caring for the schoolhouse, especially the floor, out of 1,262 replies, only 213 teachers stated that there was any janitor service furnished. In other words, 1,049 teachers out of 1,262 are required not only to teach school in such houses, but also to keep their school buildings clean. As a result, the following methods of cleansing are used: 548 sprinkle the schoolroom floor with water before sweeping, 417 use dry sweeping, 227 use damp sawdust or other dust-absorbing materials, and only 199 have oiled floors. It seems unnecessary to discuss these facts at any length, but it appears that 965 schools, out of 1,391 that answered this question, must have dirty, dusty floors for a large part of the year, not to mention the dust on benches, desks, window sills, and all possible ledges throughout the room. It does seem almost inexcusable that a teacher should not at least be furnished sawdust by the use of which she may be able more easily to cleanse the floors and prevent the great clouds of dust that must necessarily arise from the sort of sweeping here indicated.

WATER SUPPLY.

The water supply for country schools is far from satisfactory. Of 1,258 schools reporting under this general heading, only 567 are supplied with a well or with running water on the school ground; 691 schools, or nearly two-thirds of all reporting, have to depend on springs and wells outside of school grounds; and 266 schools depend on carrying water from wells or springs located more than one-quarter mile from the schoolhouse. Obviously, under such conditions as these, the children are deprived not only of fresh water, but also of clean water. Where no janitor is furnished, the children or the teacher have to carry the water. It would be much more sanitary and acceptable for each child so handicapped to bring a bottle of water from his home for his own needs, and in a few places it has been necessary to resort to this method.

The receptacle for the water in the schoolroom is generally an open bucket, and approximately half of those reporting use a common drinking cup or dipper. Recently there has been a rapid growth in the use of individual drinking cups. This is due chiefly to the laws in many States making it mandatory to avoid common drinking vessels. In this connection, it needs to be said that individual drinking cups in rural schools are altogether inadvisable. They can not be kept in a sanitary condition, and despite all a teacher can do, they will be indiscriminately used. The only safe method is the bubbling fountain connected with a covered water can or jar, or, better still, with a pressure tank supply. These are found in only 5 of the schools reporting.

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TOILET FACILITIES.

The toilet facilities of the rural schools are, generally speaking, not only a disgrace but a menace to public health and decent morals. Not over 1 per cent of rural schools are furnished with completely sanitary toilets. This is a liberal estimate. From the descriptions given in the returns, it has been comparatively easy to decide between those which are passably sanitary and those insanitary. The figures are these: Out of 1,276 replies examined, 50 schools have no toilets at all; 52 have only one; and the rest, or 1,174, have two. Nearly half (601) have no pit at all for the refuse, and 631 have an open pit. Not 20 in the whole number are protected against flies or can be cleaned with any sort of success. The Rockefeller Sanitary Commission for the Eradication of Hookworm Disease has recently concluded that it will inevitably fail in eradicating this devitalizing disease unless rural communities institute some form of septic toilets, both for residences and for schools. Likewise, there is little hope of keeping down typhoid epidemics when toilets are insanitary or wholly lacking. The biggest rural problem is that of domestic and personal hygiene. The rural school ought to lead in the health movement; but the facts set forth help us to realize how far we are from what ought to be. Every State and county board of health having to do with rural or village conditions should institute a persistent campaign for better hygienic toilets. Models should be available for every community. Boards of health are already rendering a great service in this direction. They are doing much to interest and instruct in matters of health, but they can not reach all the people, and teachers and county superintendents should feel it their special duty to carry this gospel everywhere.

OTHER ITEMS.

A little over half the schools in the county have some form of slate blackboards, and the rest have painted wood, painted canvas, painted plaster, or some one of the various preparations of paper or pulp. Nearly one-third have their blackboards set 3 feet or more above the floor, too high for the primary classes to use properly. School work begins at 8 o'clock in 74 schools, at 7.30 in 117, and at 9 o'clock in 1,102; only 167 dismiss before 4 o'clock. The report shows no cloakrooms of any sort in 537 schools; 418 have one cloakroom, and 308 two. Where no cloakroom is available, clothing is hung inside the classroom, or piled up on benches in the corners.

No thermometers are found in nearly two-thirds of the buildings reported, and even where they are supplied it is manifestly clear that many teachers either know next to nothing about keeping a schoolroom at the proper temperature, or else that the conditions of the

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buildings are such that the rooms can not be kept at even temperature. For example, many a teacher reports: "I am supplied with a thermometer and I strive to keep the temperature at 75° to 90° in winter." This may not be so bad as it seems. If the thermometer registers 80° a little above the breathing line, the temperature 1 foot above the floor may be as low as 65°. Until the buildings are more carefully constructed, the matter of heating rural schools will necessarily be unsatisfactory. Of 1,268 reports on method of heating, 764 schools use the common stove and 604 locate it in the middle of the room.

There are practically no workrooms in the schools reporting; not one-fourth of the desks are adjustable; and few of the buildings are properly decorated.

In concluding the discussion of this brief survey into typical rural schools, it should be said that it is very important at this time for the various States to render helpful service to their rural-school officers, who are eager for better things; they need specific help. Much of the back-to-the-farm movement will be disappointing, unless the rural schools are remodeled and revivified.

The reader who will take time to study carefully the summarized results presented in the accompanying table will be able to get a more complete idea of actual conditions than he can get from the condensed account given above. The names of the States from which these returns were gathered are here given in order to show that the figures represent as nearly as practicable typical conditions the country over. A study of the detailed reports brings out the fact that there is less difference between rural schoolhouses in the States mentioned than might be anticipated.

Returns were studied from 2 counties in each of the following 18 States:

Alabama.	Missouri.	Pennsylvania.
Arkansas.	Montana.	South Dakota.
Colorado.	Nebraska.	Tennessee.
Indiana.	North Carolina.	Texas.
Maryland.	North Dakota.	West Virginia.
Minnesota.	Oklahoma.	Wisconsin.

Size of school grounds:	
Less than one-half acre	321
One-half acre to 1 acre	406
One acre to 2 acres	394
Two acres to 3 acres	74
Three acres or more	50
Area available for gardening:	
Less than one-tenth acre	156
More than one-tenth acre	34
No ground available for gardening or agriculture	1,106

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Character of ground:	
Level	1,030
Rough or hilly	253
Drained	1,014
Not well drained	234
Trees	930
No trees	340
Material construction and age of the buildings:	
Wood	1,134
Brick	110
Stone	37
Cement	7
New	464
Old	805
Number of classrooms:	
One	1,162
Two	60
More than two	33
Method of lighting:	
From one side	25
From two sides	880
From three sides	346
From four sides	35
Amount of glass surface in classrooms:	
Less than one-tenth floor area	171
Less than one-sixth to one-tenth floor area	559
One-sixth floor area or more	482
Window shades and methods of using them:	
Having window shades	1,145
No shades	144
Shades fastened at the bottom of windows	234
Shades fastened at the top of window	897
Character of floors of the classrooms:	
Single thickness	611
Double thickness	644
Kind of blackboards used and height set above floor:	
Painted lumber	177
Some form of liquid slate	668
Painted canvas	98
Other improved material	188
Less than 3 feet above the floor	692
Character and number of desks used:	
Single	514
Double	774
Nonadjustable	848
Adjustable	281
Sufficient in number	1,127
Insufficient in number	143
Color of classroom walls:	
Unpainted lumber	122
Passable color	691
Unsuitable color	457

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Number of cloakrooms:	
None	537
One	418
Two or more	308
Ventilation of the classrooms:	
Windows	405
Some help from jacketed stove	336
Other devices	133
Testing the vision of the children:	
Tested	294
Not tested	968
Testing the hearing of the children:	
Tested	238
Not tested	1,002
Source of water supply:	
Well on school grounds	567
Spring in the neighborhood	134
Neighbor's well	557
Less than one-fourth mile from building	727
One-fourth mile or more from building	226
Pure (teacher's judgment)	1,032
Not pure (teacher's judgment)	182
Methods of serving water to the children:	
Bubbling fountain	5
Individual cups	673
Common drinking cups	580
Methods of heating the classrooms:	
Common stove	764
Jacketed stove	503
Fireplace	1
Stove placed in middle of room	604
Stove not placed in middle of room	559
Janitor furnished:	
Yes	213
No	1,049
Methods of sweeping:	
Dry	417
Sprinkled floors	548
Damp sawdust or other dust-gathering material	227
Floor oiled	199
Method of dusting:	
With feather duster	145
Cloth (dusting evidently poorly done)	1,080
Regulation of temperature:	
Well regulated (teacher's judgment)	814
No thermometer	755
Time of day for opening school:	
8 o'clock	74
8.30 o'clock	117
9 o'clock	1,102
Time of day for closing school:	
4 o'clock	1,121
Earlier	167

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Number and condition of toilets:	
None	50
One	52
Two	1,174
Passably sanitary	601
Insanitary	631
Open-air studying:	
Yes	406
No	845
Medical inspection:	
Yes	61
No	1,196
Care of the teeth of the children:	
Yes	68
No	1,148

The following report of the results of the sanitary inspection of 3,572 fourth-class district schools, made in 1911 and 1912 by the Pennsylvania State Department of Education, shows that the condition of rural schools in that State is about on a par with that brought out through similar investigations in other States.

The tabulated statement giving the summaries of the investigation is here reproduced:

Summary of sanitary inspection of 3,572 district schools in Pennsylvania in 1911 and 1912.

Number of schools inspected	3,572
Number of schools insanitary	3,036
Number of schools sanitary	536
School building:	
Rooms and halls unclean	229
Sawdust and antiseptics not used	2,662
Dry dusting	2,934
Light surface not 20 per cent of floor space	1,063
Light admitted in front of pupils	622
Ventilation insufficient	1,647
Stove in room	2,793
Stove not jacketed	1,029
Steam or hot water	219
Furnace in cellar	602
Room not warm	223
Floors not warm	279
Hot air	2
Water supply:	
No water supply	1
Fountain	15
Hydrant or spigot in room	188
Spigot in building or on ground	246
Drilled well	794
Dug well	1,021
Spring	1,085
Surface drainage not excluded	437
Nuisance within 100 feet	384

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Water supply—Continued.	
Menace on higher level	287
Cooler with spigot	688
Bucket not covered	1,233
Not scalded daily	1,500
Fresh supply not secured each session	251
Individual cups not used	2,337
Cups dipped in bucket	1,781
Creek water	1
Cistern	24
Ground pollution	148
Privies:	
One single	169
Approaches not screened	1,748
Dividing fences not tight	1,138
Bad repair	397
Not clean	1,190
Objectionable odor	1,320
No vault	839
Vault not water-tight	785
Vault full	500
Vault overflowing	208
Lime or ashes not used	1,066
Surface drainage not excluded	962
Urinals and flush closets:	
Not properly vented	21
Not clean	13
Objectionable odor	17
Not sufficiently ventilated	17

The accompanying tabular statement of the general hygienic condition of 109 rural schools was compiled from the details of a survey made under the direction of the joint committee of the American Medical Association and the National Council of Education. This committee sent a specially trained field agent with a camera into certain counties of the States of Connecticut, Vermont, New York, New Jersey, and Maryland to make a personal investigation of the conditions of the schools. The summary of facts given below was derived from a compilation of the returns. Many other facts were gathered, but it has not been thought necessary to present them in this connection.

It should be said that the States selected and the counties chosen within each State were singled out, not from previous knowledge of conditions, but more or less fortuitously. The committee does not claim that they are typical counties and typical schools, but it believes that they are approximately so. The fact that they are typical could be substantiated only after a similar investigation had been made in practically all of the counties of each of the States named. However, indirect evidence through the results obtained by the investigations previously referred to bears out the supposition that they approximate typical conditions the country over.

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Summary of results of the survey of 109 one-teacher rural schools in the States of New York, New Jersey, Connecticut, Vermont, and Maryland. Investigation made in 1913 by direction of the joint committee of the American Medical Association and the National Council of Education.

GROUNDS.

	Schools.
Size of grounds:	
Less than one-half acre	74
One-half acre to 1 acre	25
One acre to 2 acres	10
Location of buildings:	
On side of hill	32
On level ground	43
High ground	28
Low ground	6
Character of soil:	
Loam	31
Gravel	10
Sand	52
Hardpan	4
Clay	12
Trees on grounds:	
Schools having trees	86
Schools without trees	23
Character of fence:	
Wire	26
Board	17
Stone wall	9
Picket	3
Rail and wire	5
Rail	3

WATER SUPPLY.

Source of water supply:	
Open springs	15
Piped from open spring	7
Dug wells	68
Driven wells	10
Walled reservoirs	4
Field stream	2
No water supply	3
Sources of defilement:	
Too near privies	7
Too near farm buildings	22
In open cow pasture	4
Sources that are exposed to other kinds of defilement	36
Receptacles for holding drinking water:	
Common open pail	53
Covered tanks with faucet	40
Covered tanks with bubbling cups	1
No receptacle provided	15
How often receptacles are cleaned:	
Four times a month	37
Daily	10
When teacher thinks necessary	8

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	Schools.
Lavatory facilities:	
Washbasins	91
No washbasins	18
Provided with soap	61
Not provided with soap	48
Provided with towels	56
Not provided with towels	53
Towels washed twice a week	3
Towels washed once a week	31
Towels washed at infrequent intervals	13
Methods of serving water:	
Schools using paper cups	5
Schools with only one cup	20
Schools with one cup per child	51
Schools with more than one cup, but fewer cups than children	29
Schools without cups	4

PRIVIES.

Both boys and girls use same	50
Partitioned	45
Separate buildings provided for sexes	59
Screened	51
Distance from school building:	
Less than 10 feet	25
Between 10 and 25 feet	32
Between 25 and 50 feet	36
Over 50 feet	16
Provided with locks	14
Obscene drawings	50
Kinds of toilets and their condition:	
Provided with removable receptacle	9
Cesspool protected from flies	8
Cesspool unprotected from flies	101
Neither receptacle nor excavation	92
How often refuse removed:	
Once a year	101
Less frequently	8
Ventilated:	
No provision made	75
Some provision made	34
Odor offensive	106
Not offensive	3
Seats clean	60
Not clean	49
Disinfected	1
Not disinfected	108
Number of roofs that leak	22

WALLS AND CEILINGS.

Material of walls:	
Matching	53
Plastered and papered	14
Plastered	40
Wood	2

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	Schools.
Color of walls:	
Wood	23
Gray	30
Green	10
Tan	8
White	25
Terra cotta	2
Yellow	5
Brown	6
Color of wainscoting:	
Gray	37
Green	6
Wood	8
Brown	14
White	10
Material of ceiling:	
Matching	65
Plastered and papered	7
Plastered	33
Metal	4
Color of ceiling:	
White	36
Gray	24
Green	5
Tan	4
Terra cotta	3
Brown	3
Yellow	5
Wood	29

BLACKBOARDS.

Material of blackboards:	
Wood	49
Slate	42
Composition	4
Cement	6
Plaster	8
Location of blackboards:	
Front only	42
Front and rear	9
Front and one side	13
Front and two sides	15
Front, rear, and one side	2
Front, rear, and two sides	12
One side only	1
Two sides	7
Rear	2
Rear and two sides	3
Between windows	57
Height of blackboards set above floor:	
4 feet	1
3½ feet	2
3 feet	61
Less than 3 feet	22

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	Schools.
Width of blackboards:	
5 feet	5
4 feet	11
3½ feet	3
3 feet	70
2 feet	9
Schools not given	11
Square feet of blackboards:	
30 square feet or less	23
30 to 50	26
50 to 100	40
100 to 150	18
Over 150	2

SCHOOL BUILDINGS.

Character of building:	
Wood	100
Stone	4
Brick	5
Old	103
New	6
Good condition	80
Needing repairs	29
Basements:	
School buildings with basements	11
Sanitary basements	7
Insanitary basements	4
Floors:	
Single floors	39
Double floors	70
Deadened	1
Good condition	63
Bad condition	46
Oiled	38
Roof:	
Leaks about belfry	7
Leaks elsewhere	22
Schoolrooms:	
Length—	
20 feet or less	4
20 to 22 feet	20
22 to 24 feet	6
24 to 26 feet	13
26 to 28 feet	10
28 to 30 feet	7
30 to 32 feet	11
32 to 34 feet	14
34 to 36 feet	8
36 to 38 feet	11
38 to 40 feet	4
Width—	
12 to 16 feet	6
16 to 18 feet	6
18 to 20 feet	28

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	Schools.
Schoolrooms—Continued.	
Width—Continued.	
20 to 22 feet	31
22 to 24 feet	11
24 to 26 feet	12
26 to 28 feet	8
28 to 30 feet	2
30 to 32 feet	5
Height of ceiling above floor—	
7 to 8 feet	28
8 to 9 feet	30
9 to 10 feet	17
10 to 11 feet	14
11 to 12 feet	2
12 to 13 feet	4
15 to 16 feet	2
16 to 17 feet	3
Windows:	
Schools with—	
3 windows	1
4 windows	6
5 windows	9
6 windows	58
7 windows	9
8 windows	14
9 windows	6
10 windows	3
12 windows	1
Windows in classroom face—	
North and south	15
North, south, and east	9
North, south, east, and west	11
North, east, and west	17
North, south, and west	13
North and east	1
North and west	2
East and west	1
East and south	1
South and west	1
South, east, and west	2
Total area of glass surface in windows compared to floor surface—	
Glass surface equal to—	
Less than one-tenth floor surface	14
More than one-tenth but less than one-eighth	2
More than one-eighth but less than one-sixth	3
More than one-sixth but less than one-fourth	2
One-fourth or more	1
Not given	1
Double sash on weights	12
Can be opened for ventilation—	
Upper and lower sash	1
Lower sash	18
Can not be opened	2

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	Schools.
Windows—Continued.	
When cleaned—	
Once a year	98
Oftener	6
Never cleaned	5
Windows with shades	100
Windows without shades	9
Shades in good condition	63
Shades in bad condition	37
Cloakrooms:	
Schools having one cloakroom	64
Schools having two cloakrooms	25
Schools having no cloakrooms	20
Janitor service:	
Special janitor service	38
Teacher serves as janitor	71
Desks:	
Double desks	73
Single desks	36
Sufficient in number	105
Nonadjustable	109
In good condition	94
In bad condition	15
Desks face windows	16
Heating:	
Jacketed stove	15
Unjacketed stove	88
Furnace	6
Stove in middle of room	72
Stove in corner of room	18
Sufficient heat in cold weather	94
Insufficient heat	9
Stove troublesome	26
Ventilation:	
At recess only	62
Oftener	41
By the use of windows	48
By the use of doors	5
Both doors and windows	56
Upper sash of windows	14
Lower sash of windows	34
Both lower and upper sash	50
Sweeping and dusting:	
Once a week or less	20
Once a week and oftener	39
Daily	50
Dry sweeping	70
Sprinkle or use compound	39
Use feather duster	13
Use dust cloth	86
Use brushbroom	3
Medical inspection:	
Vision and hearing tested by teacher	52
By regular medical inspector	38

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Chapter IV.

THE LOCATION OF COUNTRY SCHOOLHOUSES.

More friction has arisen between county superintendents and school patrons and among the patrons themselves with regard to the location of rural school buildings than over any other question directly or indirectly having to do with country schools. When school district boundary lines have been established, the people naturally conclude that the building should be located in the exact center of the district, or as near the center as roads will permit. Rarely has the thought of the location from the needs of health, playgrounds, or a school farm been the chief consideration.

There is reasonableness in the demand for a central location, but only when more important demands are not in conflict with it. It is far more important, for example, to have well-drained school grounds, where the opportunity for securing a sanitary water supply and toilet system is good, than it is to give the preference to a location nearer the center of a district where these sanitary necessaries are not readily supplied. The slight inconvenience to a few children resulting from locating the building to one or the other side of the geographical center should not be considered seriously when the more important considerations of health, sanitation, playgrounds, and the larger community interests are at stake. Of course, in very cold climates children will have to be protected in bad weather, but parents are generally ready and willing to do this of their own accord. In good weather a walk to school of a mile and a half furnishes excellent exercise, teaches the children to be self-helpful and courageous, gives them strength to resist the effects of ordinary exposure to wind and rain, and is usually of greater value in general physical training than all the unnatural calisthenic exercises the teacher can devise.

In selecting a site for a rural schoolhouse, the following factors should be considered:

1. No site should be selected that will not offer a good outlet for tile drains set well below the walls of the building to keep the basement and garden in good condition. A wet, swampy piece of land is not only a muddy, dirty place, but it introduces dangers from ground air and moisture that will always prove troublesome and unwholesome. The air, on account of its great weight, presses into the ground to a much greater depth than is ordinarily supposed. When

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the air above the ground becomes colder than that in the ground, and this is true at night during warm weather and even during the day in cold weather, the heavy air above the ground will displace that in the ground, and will drive it out at the point of least resistance. Since the ground underneath and about a schoolhouse is drier than that not covered, the ground air is driven from all directions toward the schoolhouse, and by reason of the fact that the heat escaping from the building will cause an upward draft, this ground air is easily drawn into the rooms. Ground air contains a far greater percentage of carbon dioxide and other noxious gases than is ordinarily found in air above the ground. These gases are produced through the agency of the bacteria acting upon decaying animal and vegetable matter in the soil. Moreover, ground air is generally saturated with moisture, and as it rises in the schoolroom, especially at night when the building is cold, this moisture will be deposited on the walls, blackboards, and floors, so that all wooden parts of the building are rendered liable to decay and the air in the building will be stuffy and cellarlike. Unless school buildings are so built as to prevent the entrance of this ground air and the moisture brought up with it, no amount of effort on the part of the teacher will be able to keep the air always wholesome and hygienic. It is of great importance, therefore, to prevent these difficulties by selecting a site which can be kept wholesome by proper drainage.

To go to the other extreme and select a high hill or a wind-swept place for the location of the school building is also an error. What is needed is a location comparatively level, but so situated that it can be easily kept dry.

2. Other things equal, it is generally better to select a site with a frontage to the north or the south, so that the building may be planned with the short side facing toward the roadway and the long sides toward the east and the west. Such a site makes it easier on the whole to plan the building with reference to its general appearance and also with reference to its cost. In order to make this point clearer, let the reader undertake to draw a floor plan for a lot with an approach to the building from the east or the west. Either he will have to depend for his classroom on north or south light, which is to be avoided, or to face the building with the long side toward the roadway. This will introduce some architectural difficulties, for it is often much easier to get a satisfying elevation for a one-room school building with the entrance in the end rather than in the side of the building; and it is also more economical of space. Many school buildings have been doomed to bad illumination from the fact that builders have followed the custom of facing the end of the building toward the roadway, regardless of the direction from which the classroom must get its light.

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However, it is not impossible to adjust a satisfactory building to a lot facing a roadway on the east or west. Several of the plans presented in this bulletin have been drawn to meet just this situation, for sometimes school authorities are limited to the selection of a site east or west of a roadway. But where there is a choice and all other considerations are even, it is better to utilize a lot with a frontage on the north or the south.

3. Another set of conditions must be taken into account, and these have to do indirectly with the lighting. Suppose a lot is selected with a north or a south frontage, and that to the east or the west of it there are high hills or mountains sufficiently near to raise the horizon line appreciably. Such a location would at once handicap the building by making it next to impossible to secure the proper amount of light from one side or the other. If high forests or mountains are near on the east, then the west light should be preferred for the class room. If this hindrance to light is on the west of the lot selected, then the east exposure would be the only one to use. Many rural school buildings located in valleys are much more seriously handicapped from the point of view of illumination than the average schoolman is conscious of.

4. Elsewhere emphasis has been laid on the fact that our school grounds are not large enough, especially from the point of view of agricultural work. The country schools will never be able to do their work properly unless the amount of ground assigned to them is increased. Playgrounds, agricultural work, fruit growing, and forestry—all legitimate demands upon the rural school—require more land than is usually given to rural schools. But it would be possible to select a plat of ground sufficiently large and yet ill-adapted for playgrounds or for agricultural work. Hence the site selected should be on good soil, adapted for the cultivation of any or all kinds of plants or grain ordinarily grown in the neighborhood. To select a poor, sterile, rocky soil, though well situated with reference to other requirements, would be a mistake, for no teacher could, on such ground, make such a showing in agricultural experiments as would attract the favorable attention of the farmers in the community. Hilly, rough, or rocky land is not satisfactory either for playgrounds or for any other purpose to which the country school plat should be devoted.

In one case in New York State observed by the field agent of the joint committee in the summer of 1913 the schoolhouse was on a hillside and the accumulated wash down the hill had risen above the foundation to such an extent that the drainage actually "seeped through to the floor."

5. An abundant and sanitary water supply is a matter for thoughtful consideration in the selection of the site for a rural schoolhouse.

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A country school building is frequently located because of the proximity of a spring or a neighbor's well. The average spring in the country has proved to be a greater menace to health than people have ever dreamed of, because with increasing population and deforestation there is more opportunity both for contamination of springs and greater irregularity of water supply than was formerly the case. Spring water may appear very clear and yet be unwholesome to drink, and it is therefore risky to depend on springs for drinking water. If a site is selected with the idea of depending on a well for drinking water, it is important to take note of any possible chances for seepage into the well. If a high, rocky place is selected, it would be very difficult and expensive to sink a well to such a depth as to insure a sufficient amount of pure water. Generally speaking, a gravelly or sandy loam into which a well can be driven to a sufficient depth to prevent any surface contamination is preferable.

6. Finally, no site should be selected for a school building too close to electric lines and steam railways. Such a location offers opportunity for the introduction of a great deal of smoke and dust into the schoolroom. Further, there is always some danger due to fires or electricity when a building is situated near such lines. There is also great temptation for children to walk or play on car lines, and this naturally introduces useless danger. The chief difficulty, however, is the noise. Some States have laws forbidding the erection of school buildings within 500 feet of railway lines, and this sort of legislation is bound to increase.

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Chapter V.

ORIENTATION OF THE BUILDING.

No school building can be well lighted if it is not first properly placed with reference to the cardinal points of the compass. If a building is so placed on a lot as to make it necessary to locate the windows in the classrooms to face toward the north or the south, neither the required amount of glass surface nor the correct setting of the windows will overcome the difficulties thus introduced. In order to make this last statement clear and significant, these difficulties must be stated and explained.

The fundamental demands of health require the purification of a classroom by direct sunlight; but it is also necessary to introduce this all-important purifying agent in such a manner as to prevent as far as possible the direct rays of the sun from falling on the desks and books of the pupils while they are engaged in study. If the windows of a classroom are placed on the north side of a building located in any section of our country, very little direct sunshine will ever enter, and during the school season practically none, for the sun's path is then too far to the south. It may be possible in the southern and southwestern sections to get sufficient well-dispersed light in a classroom with windows facing toward the north, but the light thus entering has lost its power as a germicidal agency. Direct sunlight is the most powerful and reliable disinfectant known, and it is running contrary to one of the best-established principles of hygiene to construct either a school building or a dwelling house in such a manner as to fail to get this value of direct sunlight.

True, in large buildings devoted to high-school or technical education some special rooms are needed for art work, and for these the north light has an advantage because of its quality. North light is soft and produces more artistic shadow effects than light from any other direction. But these rooms are not as wholesome as those receiving direct sunlight, and are allowable only for short periods during the day. For ordinary classrooms, where children remain at work during the whole day, dependence on north light is a serious error.

Elsewhere detailed reasons are given why classrooms should receive light from but one side; it is sufficient here to state the fact that unilateral lighting is universally recommended in all locations

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where light is not impeded by tall buildings, a dirty, smoky atmosphere, or any other serious hindrances. In cold climates it is not best to depend on windows facing toward the north, because it is more difficult, and consequently more expensive, to heat these rooms. They are not only exposed to the direct winds from the north, but they fail to get whatever available heat the direct rays of the sun carry. By reason of these two handicaps a schoolroom so situated may require in cold weather 10 to 20 per cent more fuel than one getting east or west light. Of course the effect of the wind will depend to a great extent on the construction and location of the building. A building with walls made of porous brick or wood will show greater leakage than one whose walls are of cement or of hard brick. But while these difficulties suggest greater expense, they are not of so much importance from the health point of view as the dangers due to lack of sunshine. For the sake of health every schoolroom—and, for that matter, every living room—should receive a "sun bath" every day the sun shines.

Doubtless some who realize the great hygienic importance of sunlight have concluded that classrooms facing toward the south are the most acceptable. This conclusion would be warranted were it not for the fact already mentioned. With direct sunlight streaming into a schoolroom during the entire school day, it is well nigh impossible to furnish proper light to all the pupils in the room. This difficulty is not serious in a dwelling, where chairs are not fastened to the floor and where people can adjust themselves so as to get proper light either for reading or for work, but in a schoolroom, where from 25 to 45 children must spend a good part of each day, it is impossible, whether the desks are fastened to the floor or not, for all of the children to adjust themselves to avoid the shifting rays of direct sunlight entering the room. If, as is usually the case and probably will be for a considerable time to come, the desks are fastened to the floor, the pupils can do little to adjust their positions so as to avoid the painful and harmful effect of direct sunlight on desk or book.

If shades are used, they will inevitably reduce the light in parts of the room below the normal demand, and hence some of the children will suffer for lack of light. Many kinds and qualities of window shades have been devised to meet these conditions, but none of them has fully overcome the difficulty suggested. Space is lacking to discuss window shades at length. Suffice it to say here no shade has been developed that will properly condition the direct rays of the sun to a schoolroom so as to guard the children from eyestrain due to reflection of direct sunlight and at the same time permit the passage of sufficient light to give satisfactory illumination for all parts of the room.

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The conclusion, therefore, is this: Be sure that no lot for a building is selected which will require such an orientation of the building that it will be necessary to depend on south light for the classrooms; buildings for school purposes, especially for elementary classes, should be so planned and so located on a school lot that the classrooms may receive either east or west light.

In the construction of a small building there are some advantages of the east light over the west. First, an eastern exposure will permit the morning sun to take the chill out of the room before school begins. Second, it is probably true that there are in most parts of the country fewer cloudy mornings than afternoons, and hence those rooms having windows toward the east will get a better sunning than those with windows toward the west. In those sections where foggy mornings are prevalent, the opposite would be true. In buildings with east exposure the troublesome direct rays of the sun will have nearly disappeared by 10 o'clock in the morning. The shades can then be rolled up for the rest of the day. In the third place, the prevailing cold winds in the winter are more from the west and northwest than from the east, except along the eastern coast.

However, the correct choice between east and west windows will depend to a large degree on the surroundings. For example, if a school building must be placed near hills, mountains, or tall forest trees, it would be better to choose the west side for the windows, if the horizon line is high toward the east. If the opposite be true, the east side is preferable. A range of high hills or mountains often raises the horizon line so high that the sun may not appear above it until quite late in the day. Besides, even after the sun has reached the zenith, a mountain's side will not reflect back enough light to insure good illumination. A wide expanse of sky is necessary. It will be important then to study the surroundings, to note the possible hindrances and the general outlook in order to decide wisely whether the building should be placed to introduce east light or west light into the classrooms.

Plate 17 represents a schoolhouse in the mountains of Colorado. The location of this building makes it very essential that the light entering the classroom should come from the side opposite the mountain near which the school is built.

Even when the difficulties with reference to lighting are for all practical purposes equal, other considerations may affect a decision. An attractive outlook from a classroom is better than an ugly one, and it sometimes happens that this consideration decides the orientation when other things are equal. For example, if a lot must be selected near a busy, dusty roadway, much relief from the dust, noise, and disturbance may be secured by facing the windows in the opposite direction. On the other hand, the appearance of a building may

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demand the placing of the windows on the side from which the approach is made. All matters of this sort must be determined by local conditions. But it will always remain true that in the latitude of this country it is better and safer to depend on east or west light for schoolrooms than on north or south light.

There is still another point worth mentioning and this favors west windows. Children seated in rooms lighted from the west will naturally face north, and are then in a position to read their maps without confusion. The cardinal points on the map will then agree with the realities about them. The top of the map will be toward the real north, the left side will correspond with the real west, and altogether the representation and the reality will be more easily connected.

Thus far this discussion relative to orientation has been concerned with the proper lighting and sanitation of the classroom. The question of lighting workrooms, libraries, cloakrooms, and toilets, demands separate treatment, for in these rooms direct sunlight is not a disturbing element, and in the main the purifying influence of sunlight is more important. Unilateral lighting is not an essential condition in these rooms.

Workrooms in general are decidedly better for receiving abundant sunshine, for here benches and tables should be arranged to suit the convenience of the students, and more individual liberty is necessary. The same is true of library rooms. Toilets and cloakrooms require direct sunshine and abundance of light in order to keep them sanitary and wholesome. Proper orientation when applied to these rooms means provision for abundant light and as much direct sunshine as good sanitation demands.

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Chapter VI.

THE COUNTRY SCHOOLHOUSE.

GENERAL CONSIDERATIONS.

The country schoolhouse should be beautiful. This does not mean that it needs to be expensive. Frequently those who have much money to spend on a school building do it so thoughtlessly as to destroy all possibility of beauty. Towers and turrets have no place on a country schoolhouse. A log schoolhouse can be made beautiful. There is power in beauty closely allied to righteousness. The dissatisfaction with country life which has caused so many young people to go to the cities is partly due to the bleakness and ugliness of the farm home, the farm barn, the rural schools, and churches. If a beautiful rural schoolhouse could be constructed in every neighborhood, it would not be long before the people would see and feel its power.

How shall we get beautiful schoolhouses? There is only one way. Those who have developed that sense of fitness which we call appreciation of beauty must have power and means furnished them to create it in our public buildings. Cities where a few artist-architects are at work can do much, for they can afford to hire such architects to plan their buildings and to supervise their construction. In the country where a meager allowance is made for the construction of a schoolhouse, those in authority do not feel justified in hiring a worthy architect to make their plans. Even if they did, it is not likely that they would get the building the artist had planned; for the ordinary carpenter who builds most of our rural schoolhouses is not able to read drawings and to follow exactly the specifications the architect would draw up. Practically all of the rural schoolhouses constructed in the last quarter of a century have been copied after others in adjoining neighborhoods, and hence little progress has been made. Year after year new houses have been built perpetuating the evils of unhygienic construction and the horrors of architectural ugliness in almost every detail. By the use of the plans detailed and illustrated in another chapter, it is hoped that a little may be done to further the construction of more beautiful rural schoolhouses, and at the same time to save money and get more satisfactory buildings. (See chap. 7.)

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This emphasis on the beauty of school architecture is not for the purpose of declaring it to be the prime essential. Yet none of us should forget that beauty is in its own nature useful. Unfortunately those who have built our country schoolhouses have for the most part given little or no thought to real beauty. Some have attempted to adorn, but these adornments frequently only accentuate the lack of unity and harmony. Hundreds of rural school buildings show that if the roof and the sides, the height and the width, had been befittingly proportioned the one to the other, much money would have been saved, and far more beautiful buildings would have been obtained. Ugliness in rural school buildings has, therefore, not only cost money, but has corrupted the youth by rudely staring them in the face daily. Simple beauty is not expensive; it is by its very nature economical of material. Look at the illustration of the little log schoolhouse (plate 18A) located in a far Western State. Cover up the monstrous lean-to, and you will see how beautiful a simple building can be. Contrast this little, inexpensive building with the new and elaborate building shown in plate 18B. See how many things have been stuck together in the latter, and how much might have been saved if some one in authority had seen the real through the ideal.

Beauty is more than economical; it is educational in the highest sense. Beauty is not for the rich; neither is it for the poor. It is for all. A beautiful country school building, appropriately located, will exert a quiet but persistent educational influence on all who are associated with it, in school or out. Its unconscious reflex influence will enter into the life of the neighborhood and of necessity express itself in many ways. All who see a beautiful and appropriate school building are inclined to be more loyal to the cause it represents and less satisfied with ugliness anywhere. The district schoolhouse is the only building in the community that belongs to all, and in a definite way it reflects the civic standards of all. It is, therefore, important to express through it the highest attainable ideals of beauty and fitness, so that it may serve all acceptably.

WORKROOMS NEEDED.

The rural schoolhouse should be designed to accommodate and encourage many legitimate phases of school work now generally neglected in the country. All district schoolhouses, those for one-teacher schools as well as those of the consolidated type, should have, at least, one workroom—two would be better—where manual training, domestic science, and related subjects could be taught according to laboratory methods. In a district where the number of school children does not exceed 30, one good-sized, well-lighted workroom

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can be made to accommodate both boys and girls by alternating their work. Here the boys can be taught to make useful articles of furniture for their homes or for the school, and to apply their arithmetic and drawing to real problems. Such work can not be done in the regular classroom. When a separate room is provided, much of the manual work can be done while the teacher is hearing other classes recite. The separate workroom will furnish an excellent opportunity to place a definite responsibility on pupils who work for a part of their time out of sight of the teacher, but near enough to call for direction whenever it is needed. Manual and domestic work is individual work and each pupil can be held to strict account for the faithful use of his or her time.

An attempt to do manual training in a one-room rural school is shown in plate 2A, but certainly this is an unsatisfactory makeshift for a workroom. Under the conditions here shown the boys would either have to work out of school hours or else the rest of the school would have to take a vacation while they hammer and saw. Much cardboard work could be done without serious distraction; but very few vigorous boys take as kindly to cardboard carpentering as to making some real thing of wood. This interesting picture serves to emphasize in a more vigorous way than one could in words the need of a workroom for boys in a rural school.

The boys can use the workroom as an agricultural laboratory as well as for shop work. The preparation of boxes for testing the germinating power of seeds, the study of soils and fertilizers, experiments on the growth of plants, and a large number of similar experiments call for a special room. This room could be used by the older boys two afternoons or two stated periods a week, by the older girls for a similar time, and possibly by boys and girls together for one period when things of common interest, like domestic hygiene and sanitation, house planning, studies in food values, drawing, could be worked out to the advantage of all the older pupils. The workroom is needed by the girls for cutting, sewing, cooking, canning, and millinery, for laundry work, and for all other subjects directly connected with women's work in the home. A well-prepared teacher can make the workroom of a district school a very significant connecting link between the school life and the home.

The ordinary district schoolhouse consists in general of a classroom only, and there will be a good deal of prejudice to overcome by those who would introduce workrooms. The hoary and customary objection—"The schoolhouse I used as a boy had no workroom. I got along all right, and my children are no better than I"—will have to be met. This objection can be answered in some such fashion as this:

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Yes, you have done well; but why do you not use the same sort of a plow your father used? You find it to your advantage to use many kinds of tools he did not have. Would you be willing to deny yourself and your neighbors a modern harvester because your father used a scythe and cradle? Would you be willing for your wife to do her cooking in an old-fashioned fireplace instead of on a modern stove? Would you have her do all your sewing by hand, as her mother did? Yes; they were as good as you and your wife; but conditions have changed, and you would not be as good as they if you did not take advantage of labor-saving devices, just as they did. They did the best they could, and would be ashamed of you, were they alive, if you did not do the same thing.

Such argument may not convince all, for prejudice is not always amenable to reason. But it will rationalize the demands for workrooms and will in the end serve a purpose.

This demand will find more favor, however, if such objectors can be shown that it will often cost very little more to introduce workrooms than to do as we have been doing; that is, building schoolhouses with classrooms larger than needed. There are not so many children in many of the districts as there were 15 or 20 years ago. It is an unusual one-teacher country school that has an average daily attendance of 35 children. But suppose it does cost a little more to provide workrooms, that is no excuse for not doing it. A reaper costs more than a scythe and cradle, but it is worth more.

No apology will be offered for introducing workrooms into most of the plans which follow later in this bulletin. They are needed, and the children and the community should have them. They should be fitted with tables, cases, drawers, and benches, where tools and work could be kept safely during the progress of the work and when school is not in session. If possible, a small cooking stove should be installed and utilized for cooking an occasional warm luncheon for the children as a part of the work in domestic science, and on which, during social affairs at the schoolhouse, a pot of warm chocolate or a cup of tea could be prepared. This stove will not rust out during the summer, provided the schoolhouse is used as it should be, and as it will be if a proper incentive is furnished. With proper care, and that should be a part of the teaching, it would not rust through a summer even if not used at all. Special training in the care of tools would teach boys to take better care of tools and implements at home, as well as of public property, and this training is sorely needed by the average farmer.

It is not proposed to keep children after school hours to do manual labor of any kind; the training should be a legitimate part of the daily program. Objection to such work will, of course, be urged by some teachers and patrons on the ground that the program is already overcrowded, and that if time for manual work is taken the course of study as outlined can not be completed and the examinations passed for promotion. Such objections have weight, and

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some country teachers are so hedged about with rules, regulations, and rigid programs that they could at first do little along the lines of industrial work. It is difficult to cover all the work ordinarily mapped out, and demands for more time are constant from every one who is exploiting some specialty for the supposed betterment of the school. Each devotee to mathematics, nature study, geography, classic myths, English composition, grammar, local history, spelling, or what not is pleading, and sometimes scolding, for the greater recognition of her specialty, and by reason of this persuasion the curriculum is overcrowded, and too much fact-instruction is demanded.

No specialty is exploited when it is urged that every girl in a district school should learn something about home-making and home life in general. Girls will have to learn it some day, whether they learn it in school or not; in fact, most of it can not be learned in school, but only through actual experience; yet it is possible to interest deeply all girls, and boys, too, for that matter, in home sanitation, house planning, care of children, food values, sewing, cooking, and other things of fundamental importance to the home. These are not specialties; they are the common demands of life; and even if a girl is so fortunate as to be able to keep servants, she must know how to do such things in order to direct servants properly and economically. The demand for workrooms in the district schools in which boys and girls can be taught some of the things of practical life is part of the current demand for a more rational education for the children. By no means should the ordinary school work be neglected; but it ought to be shorn of its useless features and adapted to meet actual needs.

CLASSROOMS.

The size of the classroom in a district school should vary to suit the number of pupils of school age in the district, and more especially the probable number attending school. A room 30 feet long and 21 feet wide will accommodate 35 pupils, will allow for 5 rows of desks—7 desks in each row—and will give ample aisles between the seats and about them. A room 32 feet long and 24 feet wide will accommodate 40 to 45 pupils by placing 5 rows of desks and 8 to 9 desks in each row. In a room 30 feet long and 21 feet wide, such as shown in figure 16, 35 desks could be placed. The width of the aisle next the windows would be approximately 2 feet; the aisles between the rows of desks 18 inches wide; the space behind the last desk in each row 3 feet; and the space between the inner wall and the first row of desks approximately 3 feet. The space between the first seat in each row and the front end of the room would be about 8 feet. This location

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of the desks insures good lighting and will give sufficient space about and between the desks to manage the classes without confusion. If we could enlarge this room 1 foot in width, retaining the same number of desks, the advantage would be considerable; for then instead of 3 feet between the inner wall and the first row of desks there would be 4 feet. This suggestion is made to emphasize the need of plenty of space next the blackboard most used by the children. The size of this room should be considered in relation to the fact that it will not be cumbered by bookcases or supplies of any sort; for it has been planned for a building which is to include workroom, library, and cloakrooms.

By reference to statistics concerning the number of children attending the average district school it will be seen that such a classroom would be amply large for the great majority of one-teacher rural schools. If, however, the indications in any district are that provision should be made for 40 to 45 desks, the other dimension of 32 by 24 feet should be used.

Country schools are in session usually during the winter season, and therefore are not as likely to be troubled by the presence of flies, mosquitoes, and similar pests as they would be if in session in summer; nevertheless in many parts of the country during the fall months flies are particularly plentiful and dangerous. Whenever trouble from these plagues is liable to occur, wire screens should be provided for doors and windows, and every effort be made to prevent their presence in the schoolroom. This precaution will not only protect the children while in the schoolroom, but will impress upon them the great importance for such provision at their homes.

The height of a classroom of this size need not exceed 12 or 12½ feet from finished floor to finished ceiling. If the building is located on a lot which will permit the lighting of the classroom from either east or west and there are no obstructions from tall buildings, high hills, or forest trees, 12 feet will be sufficient. This height will save a good deal of expense in the construction and maintenance of the building as compared with a building a foot higher. The placing of the windows will be considered carefully in another section.

In planning this classroom and the other rooms in connection with it, the use of the basement as a furnace and fuel room should be borne in mind. If a classroom of this size must also accommodate a stove, it would be necessary to reduce the number of desks somewhat in order to give the proper space for the jacketed stove in the corner next the fuel room.

Some objection may be raised to the size of this room because it is smaller than many one-teacher rural classrooms, but its freedom from any incumbrances whatever answers these objections.

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FLOORS OF SCHOOL BUILDINGS.

No more serious mistake can be made in the construction of a rural school building, unless it be in a failure to provide plenty of light, than in bad construction of floors. The floors of every country school should be made double, with some deadening material between them. This is necessary primarily to prevent the floors from being cold and to exclude the possibility of the entrance of ground air. The under or rough floor may be made of any well-seasoned, rough lumber, and should be laid diagonally across the floor joists and joined together carefully. When this floor is finished, it should be covered with some form of asbestos quilt, deadening felt, or, if expense must be reduced to its minimum, good quality of building paper. Upon this, at right angles with the joists, should be laid the boards of the main floor.

Floor material of good quality is becoming more and more expensive, and as a result dealers are economizing by using lumber unfit for schoolroom floors. The best material to use is a good quality of white oak, well seasoned, in boards not more than 3 or 3½ inches wide, tongued and grooved, and blind nailed or screwed. Nailing is much less expensive, and, if properly done, answers just as well. Floors, however, are often damaged by careless workmen in their efforts to draw the boards closely together; instead of using a nail set or carefully fitting the boards so that they will join together easily, they drive the nails in with a hatchet or hammer and frequently batter the edge of the board so that when the floor is completed it will show these marks and leave openings for the entrance of dirt. Those who have under their charge the construction of schoolhouses will save a great deal of future difficulty if they will hire someone to oversee the work of laying the floors. Such an overseer could select the boards, see that they were properly prepared, and prevent them from being marred in the nailing.

If it is impossible, on account of expense, to use oak, a good quality of hard pine, with boards not more than 3 inches wide, properly tongued and grooved and set carefully, will make an excellent floor. Here again the supervisor should be on guard to prevent the use of any boards with pitch gashes or knots; otherwise the probability is that such boards will be used, and they will always make the room appear untidy and gather much dirt and dust.

Maple flooring may be used, and, if properly laid and carefully kept, will prove satisfactory; but maple boards are soft, stain easily, show the dents of nails in shoes, and in general are more easily marred than either hard pine or oak. Maple, however, does not splinter so easily as pine and will generally wear longer.

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After the floor has been laid it should be planed or sandpapered to an even surface. Before it is used it should be treated with hot linseed oil, and then, after it is thoroughly dried, it should be waxed. The oil will fill the pores of the flooring and prevent it from shrinking, and the wax will give it a finish so that it will not mar easily nor hold the dust.

This is a more careful preparation of the floor than is usually made in constructing a district schoolhouse. The main things, however, to be insisted on are double floors, a good quality of material for the upper floor, and careful laying. The care of the floors will be discussed in another section dealing with the general hygiene of the schoolroom.

WALLS OF THE CLASSROOM.

As lumber has rapidly increased in cost during the last few years, and as the use of plastering made of cement or pulp has become much more common, comparatively few country schoolhouses are now built which have an all-wooden finish on the inside. In certain sections of the South, where lumber is less expensive, and in parts of the Far West, where buildings are remote from railways, classrooms are still ceiled entirely with wooden boards; but throughout the country as a whole most rural school buildings use some form of plastering for the walls. When it seems necessary, on account of convenience or expense, to use lumber, the boards should be well seasoned, not more than 3 or 4 inches in width, carefully tongued and grooved, and joined evenly. The chief difficulty in the use of lumber for the ceiling is that it is often left unpainted, absorbs much light, and makes the schoolroom too dark. Those walls on which no blackboards are placed should be painted above the 4-foot line a very light buff or grayish color, so that there will be no glare and yet the absorption of much light will be prevented. A clear white is objectionable, because it is liable to reflect high lights and to overstimulate the eyes of the children. The red end of the spectrum should never be used, because those colors absorb too much light, are objectionable in appearance, and produce disagreeable mental effects. Naturally, the walls above the blackboard should be painted the same color as the other walls. All walls carrying no blackboard should be stained or painted below the 4-foot line a neutral light brown or a dark gray. The walls below the blackboard should be treated in the same way. The ceiling overhead should be painted a light gray.

When plastering is used the surface should be made firm and hard, so that an occasional cleaning with a damp cloth will not harm it. Clear white plastered walls should be tinted a light, grayish

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buff or, when light is plentiful, a slight greenish tint may be substituted. Green, however, is a rather risky color to use because of the danger of introducing too much of it. The use of a light, grayish buff is in general to be recommended.

If wainscoting is used below the windows and the blackboards, the boards composing it should be stained a light brown or a medium gray. This will prevent any strong and useless reflection into the eyes of the children when at work at their desks.

The ceiling should be tinted a lighter color than the walls in order to prevent too much absorption of the light.

BLACKBOARDS FOR CLASSROOMS.

Ordinarily, the best blackboard material that can be used for rural schools without a good deal of expense is a prepared slate cement, which can be mixed and spread on as ordinary plaster. This costs more than the various forms of veneer or the preparations of pulp or cardboard now on the market, but if it is put on in the proper way it is much more permanent and will not buckle or draw away from the wall as the other material mentioned is inclined to do. If it is possible to use slate for the blackboards, it should be used by all means, for, when carefully set, it will prove more satisfactory than any sort of manufactured blackboards. Glass blackboards are still better, but they are so expensive that it is not likely that they will be used for the ordinary district school. Glass blackboards are prepared as follows: A plate of heavy glass is ground on one side lightly, but thoroughly and evenly, and is slightly roughened on the other side; then this roughened side is painted the exact color that the board is to have. By setting this painted side against the wall the color is reflected through the glass to the other side and seems to be an integral part of the structure of the glass. The ground side is the side upon which the writing will be done. The grinding roughens the glass, which causes the chalk to leave a clear, distinct mark on it.

Many experiments have been made in order to determine the proper color of the blackboard. In general the most satisfactory color is a dull black. A very slight tint of green renders the blackboard a little more satisfactory and a little less conspicuous, but it is so easy to use too much green that one hesitates to recommend it. A decidedly green blackboard is very trying on the eyes and disturbing to the sensibilities. Many people suffer when in the presence of much greenish color, and for this reason it is generally safer, unless the work can be intrusted to some one who appreciates all these difficulties, to use a dull, dead black. The liquid slating, so called, often put directly upon the plastered walls, may prove fairly satis-

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factory for a time, but the plastering will soon begin to chip and discolor, and after some usage the board will look spotty and the crayon marks will not give a clear, distinct impression. Money can be saved, therefore, by the use of a specially prepared cement blackboard or of some good quality of the other preparations now on the market.

HEIGHT OF BLACKBOARDS.

A district school must accommodate the children of all of the elementary grades, and hence the blackboards must be placed within the reach of all the children. The mistake of placing blackboards so high that the little folk can not use them is a very common error, which those who are constructing a rural school should seek to avoid. If the blackboard on the wall opposite the windows is set 28 inches above the floor, the little folk will be able to use the lower part of this board to advantage. If the board is 3½ feet wide the larger pupils will have no difficulty in finding space at the proper height for their work. One can not do good work on a blackboard in a stooping posture, and the work can not be seen so readily if it is too high. The blackboard on the end wall near the teacher's desk will prove more satisfactory if set 3 feet above the floor and made 4 feet wide, for this space will be utilized largely by the teacher for illustrative work and for such assignments as she may wish to indicate on the board. The rear end of the room may also be utilized for blackboards when the "breeze windows" are set as indicated in the floor plans suggested. The placing of this board may correspond with that at the other end of the room—that is, it should be set 3 feet above the floor and should be about 4 feet wide. The irregular line of the blackboards about the room will not be disagreeable, despite the opinion of some architects.

No blackboards should be placed on the window side of the room. There should be no wall space of any conesquence left on the window side on which blackboards could be placed; there will be no space between the windows and only a short space in front of the windows, and this space ought not to be used for blackboards. It will not receive sufficient light, and it will be so badly placed with reference to the children seated at their desks that they will not be able to read easily anything written on it. The two ends of the room and the side opposite the windows will give space enough for blackboards.

The chalk troughs underneath the blackboard should be wide enough to hold the erasers as well as the chalk, and should be deep enough to catch and hold the chalk dust dropping from the brush and the board surface. If a narrow strip of ¼-inch wire mesh is laid in this trough and is hinged so that it may be lifted when the trough is to be cleaned, it will keep the erasers from dipping into the chalk dust

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and carrying it to the hands and to the board, and thence scattering it over the room. This device will cost very little and will prove very helpful and acceptable.

DOORS OF SCHOOLROOMS.

Comparatively little may be said concerning the doors of schoolrooms, for those generally used are of the stock pattern, and no others are ordinarily available. It is to be hoped that we shall get away from the ordinary panel doors in time, especially for school buildings, and come to use the plain door without panels. These are now manufactured in a few places and have proved acceptable. No panels mean no ledges to gather dust and dirt; and plain doors are easily kept clean.

The outer door of the schoolhouse should swing outward, both as a protection against danger from fire and against the driving rains. The positions of the doors of the schoolrooms, workrooms, and libraries shown in the various floor plans are worth the attention of those who are planning school buildings.

TRANSOMS.

Transoms in schoolrooms, and for that matter in dwelling rooms, are largely a delusion and a snare. They are usually the dirtiest places in the room, are rarely used, and have been continued from time immemorial out of mere habit. Generally they are so far out of reach and so hard to open that they can not be used. As a result they merely add to the expense of building, gather dust, and render the room untidy. It costs a great deal more to set transoms properly than one would imagine. The "breeze windows" and the doors and windows in the adjoining rooms may be utilized for breezes in hot weather much more safely and easily than transoms. Those who are planning rural schoolhouses would do well to abandon transoms.

PICTURE MOLDINGS IN SCHOOLROOMS.

One is loath to advise the leaving out of picture moldings in schoolrooms and dwelling houses; they are very convenient and useful; and without them walls are usually marred and rendered unsightly by the use of nails and other fastenings for hanging pictures; but these moldings gather so much dust and dirt that a schoolroom on the whole is better off without them. Some inconspicuous nails or screw hooks may be fastened to the woodwork of the walls without marring them and without catching the dust. Incidentally it should be noted that it is not infrequent to find too many pictures in schoolrooms. Few things are more tiresome than a wall loaded down with a hodgepodge of various kinds of pictures.

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CLOAKROOMS.

Every country school should have a special room where children can hang up their wraps and place their lunch baskets in safety and out of the dust and bad atmosphere of the schoolroom. Two cloakrooms, one for the boys and one for the girls, would be better than a single cloakroom for both boys and girls; but, if a single room is properly placed, lighted, ventilated, and heated, it will serve the purpose. In the chapter on the hygienic condition of rural schools it was shown that a comparatively small percentage of rural schools are furnished with cloakrooms and that in the main the children have to hang their wraps in the classroom or stack them up in piles on unused benches. No argument seems necessary to prove that such care of children's wraps is not only untidy, but dangerous because of infectious diseases. If hooks for wraps are placed on the schoolroom walls, they will prevent the use of these walls for blackboards, render the room unsightly, contaminate the air with odors from damp or soiled garments, and absorb some of the light. Furthermore, wraps so placed will be knocked down as the children pass about in the schoolroom. Merely from the point of view of economy, it will require almost as much space to make room for hooks and passageways about the wraps within the classroom as it would to partition off a part of the building specifically for this purpose. No teacher can make a room appear attractive and well cared for when all kinds of wraps are hung upon the walls, and it is one business of the school to teach children the proprieties of life. When cloakrooms are properly located, they can be carefully supervised by the teacher, and this will lessen the probability of pilfering. The loss of umbrellas, overshoes, and other similar articles is frequently very troublesome to the teacher, as well as to the pupils. Cloakrooms are necessary, and every plan set forth in this bulletin calls for them.

LIBRARY AND TEACHER'S ROOM.

It may be repeated that the school building belongs to the whole community and not simply to the children who are attending school and the teacher who is employed. It is generally the only community property within the district, and, hence, everybody has a right to use it, under proper restrictions, and to make it the general civic center of the community. Practically all district schools throughout the country have or should have some general reference books, and they need decent places to keep these books where they can be consulted readily, easily, and without disturbance. It is not necessary in a small district school to have a large room for the library, but the library room should be made the most beautiful and interesting

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one in the building. Here little touches of decoration and comfort may appear and an atmosphere of quiet study be suggested.

Many of the books found in school libraries can be used to advantage in interesting the patrons in the community in what the school is attempting to do and is doing, and a special effort should be made to collect such books as the people need. One of the general reasons why country people do not read more good books, and why they read newspapers instead, is that the newspapers are brought to them and that books, even if found in the school library, are kept there and are not readily accessible.

Many States have provided by legal enactment for the establishment and maintenance of libraries in country schools. Lists have been made out by committees and officers to guide in the selection of books. But for the most part these books must be kept on shelves or in bookcases within the classrooms and be used by the pupils at their desks while classes are being conducted. As a result the school library is not used effectively by the pupils unless the teacher has special aptitude for interesting them in the books at hand. Adults have difficulty in giving undivided attention to their reading when they are surrounded by much noise and confusion. School children have still less power to focus and hold their attention. Moreover, the ordinary classroom with its necessary discipline does not furnish the incentive nor the atmosphere of a reading room. A library room can be made attractive at little expense. It can be kept neat and tidy, and will exert a tranquilizing effect on the children who are accorded the privilege of using it. The mere experience of being in a room devoted to books and reading will create a new sort of sentiment for books and develop a love and respect for them.

A district-school library should not be restricted to the use of the pupils in attendance. The books belong to the community, and all who can make worthy use of them should have access to them. Therefore, with a special library room available, children who have left school and all adults in the district should be invited to come at any time during school hours to read and to borrow books for home reading. This use of the books would be impossible if they were kept in the classroom, for the work of the regular recitations must go on and the teacher's time be left undisturbed. In brief, the country-school library should be the public library for that community, and the school building should be designed with this in mind.

The question of the size of this room would naturally arise here. How much space can be spared, or rather, how much can be provided for a library room? There will not be a large collection of books in most of the rural schools for a long time to come, and, hence, from the point of view of providing room for books, only a small space will be needed. Shelves can be built in the walls at little expense and

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without encroaching much on the space available, but a room large enough to provide for a reading table and a few chairs will be necessary. Furthermore, the library room should in many buildings, and perhaps in most one-teacher buildings, be used also as a teacher's room. For her accommodation a small wardrobe, a washstand, and a mirror would suffice. The school supplies also can be kept in this room.

The library room will afford the teacher opportunity to confer privately with patrons and school officers. Teachers will soon learn that when parents call to present a grievance it will appreciably lessen any possible friction to send them to this room where an atmosphere of quiet and dignity prevails and to allow a few minutes to elapse before conferring with them. The more beautiful and tasteful this room can be made, the easier it will be to come to an amicable agreement. For these various reasons, in many of the floor plans presented for one-teacher buildings one room is planned to serve as a library and a teacher's room.

A room 10 feet long and 8 feet wide will generally be large enough for both purposes, especially if the windows are correctly set and the shelves and wardrobe are built into the wall.

This room should open only into the classroom, so as to give the teacher entire control of it and to make it possible to keep it warm from the classroom stove. If its location should afford an opportunity to build a small fireplace in it in connection with the chimney for the classroom stove, its usefulness and cheerfulness would be appreciably increased. The floor should be stained and waxed, and some tasteful, inexpensive rugs be supplied.

If this library room can be made a sort of spiritual and intellectual sanctuary for the community, its reflex influences will be seen and felt in many unexpected ways. A tasteful, cozy, and inviting library room in some of our district schools would help mightily to develop a dissatisfaction with rusty stoves, broken window panes, dirty floors, a hodgepodge of chromos on the walls, ill-kept school grounds, and that general air of neglect so commonly seen about country schoolhouses. This reflex influence might reach beyond the school grounds.

The possible use of the library room in connection with social activities in the community needs only to be mentioned. The room would be too small, of course, to attempt to entertain in it alone, but in connection with the workrooms and the classroom, it would prove a place for some social features that would aid in making the community life more enjoyable.

If some such plans for a library room could be wrought out, and the books be selected and used with reference to the special needs of the

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community, the people would soon be willing to increase the expenditure for books and would develop a commendable pride in their public-school library.

BASEMENTS.

Until recent years very few rural schoolhouses have been constructed with basement rooms, and these have been in the colder climates of the north, but with the use of basement rooms there has been a growing recognition of their value in rural schools. In the first place, a good basement furnishes the best location for a furnace for heating the building. The word "furnace" is used here instead of "jacketed stove;" the only difference between a jacketed stove and a furnace is that the jacket surrounding the furnace is open at the top only through ducts or pipes, which are devised to conduct the warm air to different parts of the building. In all essentials, a hot-air furnace is merely a modified jacketed stove. When a furnace is used in a basement, it will be possible to heat directly, not only the classroom, but the workrooms, library, and cloakrooms. This will give a much more satisfactory and even heat to the various rooms than if dependence were placed upon a jacketed stove within the classroom itself. Furthermore, it will give an opportunity to ventilate all the rooms to good advantage. By placing the heating device in the basement, space will be saved in the classroom and a greater amount of space for fuel can be economically provided than would be easily possible on the first floor.

In the second place it would obviate much dirt, dust, and confusion in the classroom. In spite of all one can do, even with the use of wood, a stove in the classroom is a source of a good deal of litter in one form or another, and it always makes the room appear untidy and ill kept. Moreover, a building is less endangered by fire when a furnace is properly placed in the basement than it is with a stove located within the classroom. There is always some danger of fire dropping on the floor, or of doors coming open out of school hours and thus endangering the building. A good basement with a cement floor and carefully protected joists above to prevent overheating from the furnace reduces the possibility of danger from fire to a minimum. A furnace also generally has a better draft than a jacketed stove set in the room above because of the greater distance between the intake of the smoke flue and the exit at the top of the chimney. The fresh-air duct can be easily arranged from the outside through the basement to the furnace without in the least disturbing the general appearance or structure of the building. In another place more extended discussion will be made of the heating of schoolrooms.

Basements are always advantageous for the location of toilets and baths. This matter will be taken up in another chapter; it

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is sufficient here simply to state the fact in order to make clearer the value of basements under rural schoolhouses.

It has been said above that a basement offers opportunity for a larger fuel room than can be accommodated on the main floor. This is a very important matter. In cold climates it is absolutely necessary to have some convenient and ample space for the storage of fuel for the winter, else the teacher or the pupils will be exposed to the weather in bringing in fuel and cleaning the stove of ashes. With a basement under a rural schoolhouse, ample room can be secured for the storage of sufficient fuel to last through the winter. This can be put in before the beginning of school and will be safe from rain and snow and will be in far better condition than if it were in some detached outbuilding. It is impracticable to attempt to build a fuel room sufficiently large on the main floor to accommodate a year's supply of fuel.

Doubtless the main objections which will be raised against the construction of basements under rural schoolhouses are the expense of construction and the difficulty of keeping them in a sanitary condition. A basement should not be constructed in a school building located on flat, wet land, unless there are abundant opportunities for properly underdraining it, or, rather, surrounding it with drains so that it will not become damp or allow water to seep in during a rainy season.

The best method of keeping basements dry is to surround them with tile drains, set at least a foot below the level of the basement floor. To surround the building with tiles is better than to attempt to run a drain beneath the floor. The tiles must be large enough to carry away all of the water flowing toward the basement, and the ditch must be so constructed that there will be ample flow into it from all directions. Comparatively little local surface water sinks into the drain; the water comes up from below into the drain and is thus carried away, frequently after having traveled a long distance underground. This principle is not generally understood by those who have not had large experience with the use of drain tiles. The pressure of the water increases with the depth and naturally that lower down would be the first to escape, just as in artesian wells. If, therefore, a drain is placed all about a school building and below the level of the basement floor, there is no probability that any flow of underground water will reach the school building, for it will be carried off through the tiles thus placed.

When a rural-school building is located on high, gravelly soil, with no drainage toward it from any direction, it will not be necessary to surround the building with a drain, for a good, strong cement floor and cement walls will prevent the entrance of any moisture

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that might otherwise come in. However, it is generally saf[illegible] frequently not expensive to surround the building with a dr[illegible] indicated, and this makes assurance doubly sure.

Under ordinary conditions eaves troughs and leaders shou[illegible] provided to carry away the water from the roof of the buildin[illegible] there are no eaves troughs, the water will fall down all abou[illegible] building and saturate the ground, making it difficult to keep[illegible] basement walls dry. The water from the roof should be ca[illegible] away a sufficient distance to prevent any of it from finding its [illegible] back to the basement. When a drain is placed well below the le[illegible] of the basement floor, the roof water can be carried down throu[illegible] the leaders and through cemented sewer tiles into the drain. C[illegible] must be taken, however, to prevent the débris which gathers on [illegible] roof and in the gutters from clogging the leaders or the drain belo[illegible]. Generally, there should be some form of trap between the sewer t[illegible] and the end of the leaders to catch the coarser materials and th[illegible] prevent clogging.

Eaves troughs, however, have their disadvantages, especially in cold climates. Frequently, when the roof is covered with snow and the atmosphere is below the freezing point at the eaves, the heat escaping from the school room will cause the underside of the snow to melt. A part of this water will freeze in the troughs and leaders and in time they will be clogged with ice and rendered worse than useless. Some builders in the north have given up the eaves troughs and depend on a drain directly below the eaves to catch and carry away the water falling from the roof. They lay the drain a safe distance below the level of the walls, give it a good gradient, fill the space above it to within a few inches of the surface with coarse broken stone or boulders, put a thin coat of soil and sod over the broken stone, and thus let the water sink quickly to the tiles. When stone is near at hand, this method of drainage will cost less than the use of leaders and eaves troughs and has proved acceptable in many places.

Besides the difficulty experienced with ice, eaves troughs are easily clogged with leaves and are frequently broken. Constant care should be exercised to keep them in proper condition.

The space to be excavated for a basement will not necessarily be of the same size as the school building. If it seems necessary to economize, only such excavation need be made as will give sufficient space for the use of the basement as indicated.

The height of the basement is a matter that can not be definitely settled once for all; each location will offer different conditions of drainage and surrounding topography. At some places it will be possible to excavate to a greater depth with safety than at others. Besides, the size and shape of the building will have a good deal t[illegible]

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do with the amount of basement walls showing above the ground. Ordinarily the distance between the finished floor of the basement and the joists of the floor above is about 8 feet. If the depth of the finished floor is 4 feet lower than the surface of the ground around the building, it would be necessary to raise the foundation wall 4 feet above the surface of the ground, and unless the building is rather low and wide this would leave the foundation wall too high and make it difficult for the exterior to maintain proper proportions. If the excavation is 5 feet below the surface of the ground, precaution will be necessary to prevent the entrance of ground water and to keep the basement from becoming damp and unhealthful.

The contour of the ground and the nature of the soil, as well as opportunities for carrying water away from the building will have much to do with the depth of the basement. It is possible to make a basement, where work rooms are not to be installed, usable and sanitary when the height between the cement floor and the bottom of the joists supporting the floor above is only 7 feet. In this case it will generally be necessary, however, to set the furnace in a water-tight cemented pit a foot deeper than the level of the basement floor, so as to keep the top of it at a safe distance from the floor joists above.

UNILATERAL LIGHTING.

If the great majority of children were not right-handed, it would be unreasonable to demand that the windows be so placed in school-rooms as to admit the light from the left side of the pupils when seated at their desks. But, since we are a right-handed race, with brains organized accordingly, the great majority of children are rid of troublesome shadows in writing only when light is admitted from the left side, thus carrying the shadows away from the written work and relieving the vision from the disturbances which would otherwise come. If the reader will take a seat in a closed room near a window and attempt to write with the hand which is next the window, he will realize more fully than words can tell how the shadows of his hand and pen will trouble him. Children suffer more from such disturbances than older people, because their eyes tire more quickly and their attention is more easily distracted. Hence it is a matter of importance to the health and comfort of all right-handed children to be so placed in the school room that light should come from the left rather than from the right.

All left-handed children should be taught from the first to write with their right hands. Contrary to the general belief, this is not a serious undertaking if it is made when the child is just learning to write. If, however, a child has not been early taught to use his right hand and has reached the upper grades with an established

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habit of using his left hand for writing, it is often better to let him continue rather than to insist on a late change. In all cases, however, it is only fair to the left-handed writers to seat them, if possible, so that the light may come from their right, so as to throw the shadows back of their hands. But, since the great majority are right-handed, schoolhouses should be built to meet their needs and special provision be made for those who have not been taught the use of the right hand for writing.

But some one may ask: "Why not have windows on both sides of a classroom, for is it not impossible to have too much well-diffused light in a schoolroom?" Until very recently all school buildings were constructed in this manner, and it is still hard to convince some people that lighting from one side is better than lighting from both sides.

Suppose we consider a schoolroom with east and west exposure, with the same number of windows on each side, located in the same relative positions. At 10 o'clock in the morning, other things being equal, the light is stronger from the east than from the west, and the line where the light from each side is equally strong is well toward the west side of the room. This line will shift toward the east side the rest of the day, reaching the center at noon. But at any time in the day there are always two shadows of the hand and pen. These shadows are of equal intensity only at this shifting line of equal light. Here they are comparatively inconspicuous, but still visible. To the left or right of this changing line one shadow is stronger, and hence it is impossible to seat all pupils so as to give them an equally good light for writing. There is no desk in the whole room where double shadows of the hand and pen may not be seen; but those pupils who receive the stronger light from the side opposite the hand used in writing experience less difficulty. If the heavy shadow falls athwart the work and within the focus of the vision, it will fatigue the eyes uselessly. For this reason it is impossible to seat all of the pupils in a schoolroom with bilateral lighting without imposing some slight hardship on all and a serious hindrance on something less than half of them.

There are other reasons why bilateral lighting is not to be preferred. The best place for a blackboard is directly opposite the source of light, and hence it ought to be placed on the wall of one side of the classroom. The common custom has been to place the blackboards between the windows on both sides. Such a setting of blackboards is responsible for an untold amount of eyestrain, headache, and habits of inattention. He who reads these lines and can not recall from his school days a distinct memory of pain from such blackboards will understand the justice of the criticism if he will face an unshaded window and attempt to follow the demonstration of a problem

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whose solution is worked out on a board adjoining the window. It must be remembered that the eye is to a large degree an automatic or reflex organ and accordingly accommodates itself to the light entering it. If one looks at work on a blackboard adjoining a window, a conflict in the demands of vision takes place. The strong light from the window causes the pupil to contract so as to reduce the number of rays of light which would otherwise enter the eye and overstimulate and shock the retina. But this is just the opposite of what the eye demands in order to read easily what is written on the blackboard; for when the eye is focused on a dark surface the pupil expands so that all the needed available light may enter. This conflict is the cause of much eyestrain, fatigue, and the accompanying revulsions.

Young children should not spend much time studying work written on blackboards; but we can not do without blackboards nor without frequently directing the attention of the children to work placed on them. It may be argued that there would be space enough on the end walls for all the blackboards needed, and that it is unnecessary to locate them between windows on the sides. Frequently, however, the teacher's end of the room is broken by doors to cloakroom, fuel room, or library, and all the available blackboard there found is needed for assignments and directions. The rear of the room, even if not broken by doors, is too far removed from many of the pupils to make a blackboard placed there effective for class demonstrations. Besides, the light on the end of the room is generally not so good as it is on the wall directly opposite the light. It is a rational conclusion, then, to say that even if unilateral lighting were not in accordance with the demands of hygiene it would still be wise to locate all the windows on one side, so that the other might be used for blackboards.

Contrary to the usual belief, light coming directly from above the desks introduces more disturbing shadows than that coming from the left. For this reason alone lateral lighting is generally preferable in schoolrooms to sky lighting, though the latter is often helpful in cities where tall buildings obstruct the light or where troublesome reflections from outside buildings are likely to overstimulate and fatigue the eyes.

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Chapter VII.

PLANS FOR RURAL SCHOOLHOUSES.

The various plans exhibited in this bulletin are introduced for the purpose of furnishing to district-school authorities some specific suggestions to aid them in the planning and construction of rural schoolhouses. The variety of plans corresponds to the varying conditions met with. Some communities are able to construct buildings of ample size; others are limited in means. Some neighborhoods, with small school population, need small buildings; others, whose school population is growing, need larger buildings. Some communities can command the means to equip a building with modern conveniences; others will have to reduce expense to the minimum; and some must think of consolidation and the sort of building and equipment such conditions demand. Problems of rural education are so diverse that no one building can be designated as a standard building. There are some conditions which every building ought to meet and which have been set forth briefly in the earlier chapters of the bulletin; but, in other respects, country school-buildings must be constructed to meet the demands of the particular neighborhoods which they are to serve.

Model No. 1.

The first model presented is that of a one-teacher school building, including one cloakroom, a teacher's room, a library, a workroom for the girls, a fuel room, a toilet for the boys and one for the girls. This building is designed to accommodate about 40 pupils.[1] The plate showing the interior arrangements of the various rooms is from a photograph taken of the model with the roof removed. The number of desks shown in this cut is too great. The desks are properly located, but each will occupy more space than is shown in the illustration.

It is to be noted that in this building the main entrance is on the side. This, as has been said in the discussion on the location of the schoolhouse, is not, in general, the most satisfactory place for the main entrance to a one-teacher rural school building, because in a way it necessitates placing the long side of the building toward the roadway from which the entrance is made. However, school officers

[1] See plate 6.

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are sometimes compelled to select a location with east or west frontage, and in such locations, if the main entrance is placed in the end of the building, the broad sides of the rooms would lie north and south, and this would make it exceedingly difficult to secure good lighting. The floor plan of this building was drawn with this difficulty in mind and is designed to help solve it. This plan can be used on a lot fronting east or west, and in either case will get good lighting. The plan contemplates facing west, so that the classroom would be lighted from the east. This will shield the classroom from the north and west winds in winter, and also, to some degree, from the heat in summer. The only difficulty with this orientation would be that the workroom, designed for the girls, would have only north light. If the building were faced toward the east and dependence were placed on west light for the classroom, then the workroom and library would get the south

FIG. 1.—Front elevation, Model 2.

exposure. The choice between the two orientations should depend on local conditions. Either will be, in the main, satisfactory.

In this building toilets are shown for the boys and the girls, the one for the boys being just to the left of the entrance from the outside, and the one for the girls opening off the workroom, which is largely designed for the special work that girls will engage in. Some objection might be offered to opening the girl's toilet into the workroom. It would be better if this could be easily avoided, but since this workroom will be occupied for the most part by the girls, it will be easy for the teacher to maintain proper privacy in it. If, however, it should seem advisable to use this workroom for both boys and girls, the program for the boys can be so arranged that no inconvenience for the girls will arise. Furthermore, the door into this toilet room may be made through the fuel room by slightly enlarging the space for the fuel room and that marked for the girls' toilet, and thus due privacy could be maintained. Of course where running water is not available, the toilet rooms shown could be left out or be used for other purposes.

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The boys' room could be easily transformed into an additional cloakroom, and that for the girls be thrown into the fuel room or used as a tool room. The time is coming soon, however, when washout toilets will be more common in country schools, for the pressure-tank system of water supply will meet this demand.

In this building the light for the library comes from two sides, and the room will therefore be well lighted and properly purified by sunshine. Those who read or work in this room can easily adjust themselves so that there will be no need for anyone to face the light. The room is arranged to open only from the classroom and is thereby under constant and direct control of the teacher. Bookcases should be built in the walls. There will then be plenty of room for a reading table and chairs for those who are sent here to do their work. This library room should be made as attractive as funds will permit. The

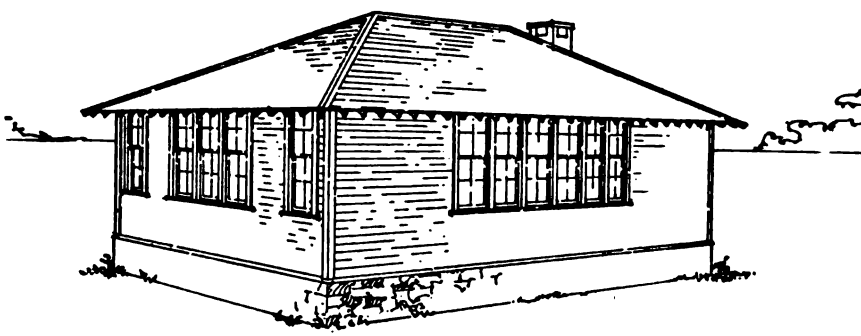

FIG. 2.—Rear elevation, Model 2.

children will consider the privilege of using it as a sort of reward of merit, and the teacher can use it effectively for many purposes.

The use of the workroom will, of course, depend upon many conditions. It will be noticed that the chimney passes up through this room, and hence a small range could be placed in it and the girls be taught scientific cookery. Tables and cases could be located in it for the purpose of teaching the designing, cutting, and making of girls' clothing. If the boys are to be taught also in this room, a workbench could be installed and certain lines of manual work could be engaged in.

The cloakroom to the right of the main entrance is designed for the use of both the boys and the girls, and has a door opening directly into the classroom. By a little careful supervision and proper arrangement of hooks, cases, and shelves, this room should be ample for the number of pupils it is designed to accommodate. If, however, at times the older girls should need a little more privacy, the workroom could be utilized for them.

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The teacher's room is located off the front end of the classroom and is designed as a private place where the teacher may keep her wraps, and, if need be, keep the supplies for the school. In this plan, the teacher's room need not be utilized in any way as a reception room, for the library can better serve that purpose.

The classroom receives all of its light from one side, and the windows on this side are placed well to the rear. The bottoms of the windows are 4 feet above the floor, and their tops extend to within a few inches of the ceiling.

The cubical contents of this building between the floor and the main ceiling and the outside walls is approximately 15,700 cubic feet. The cost of construction, of course, will depend upon the kind of material used on local markets, both as to material and labor, and the kind of finish and furniture used on the interior. The model from which the photographs were made was designed and constructed by Messrs. Cooper & Bailey, architects, of Boston. There are no difficulties in the way of construction.

The interior floor plan can be modified to some degree without serious disturbance; for example, if the library were furnished with a wardrobe to accommodate the teacher, the cloakroom could be enlarged to advantage. However, it would be a mistake to put anything in the library that would have a tendency to limit its usefulness or disturb the opportunity for making it attractive and beautiful.

As has already been said, if the workroom is to be used for both boys and girls, it would then be advisable to open the door into the girls' toilet from the fuel room. The fuel space could be boxed in, and there would be sufficient passageway through the fuel room into the toilet room. This would make the location of this room less objectionable.

A closer view of this building shows that the front steps are shielded partly by a small overhanging roof. The front door is protected from the weather. The floor of the open passageway should be cement or terrazzo. The only objection to leaving this passageway open to the outside as indicated is the danger of tramps or other disreputable travelers taking advantage of it as a place to tarry at night. If need be, the steps could be set in and double outside doors could be included. In the milder parts of the country this outside door would not be necessary. In colder northern regions the outside should be closed with double doors, thus preventing the snows from drifting in.

It would be a pity to disturb in any way the lines of the exterior, the pitch of the roof, the width of the eaves, the height of the windows, the height of the gables, or the lines of the windows, for they all blend into an almost perfect unity. A building with such delicate lines as

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this should not be marred with eaves troughs or leaders. The wall should be protected by a tile drain all about the building located directly under the eaves, as described on a preceding page.

The little touches of art indicated in the style of the window sash may be neglected without any serious disadvantage. The color of the model shown by this photograph is pure white. It would not be at all necessary to follow this color scheme in a building constructed after this model; in fact, the building would be less conspicuous and more beautiful if a darker neutral shade were used for the roof and the sides. A dark weathered brown for the outer walls and a dark

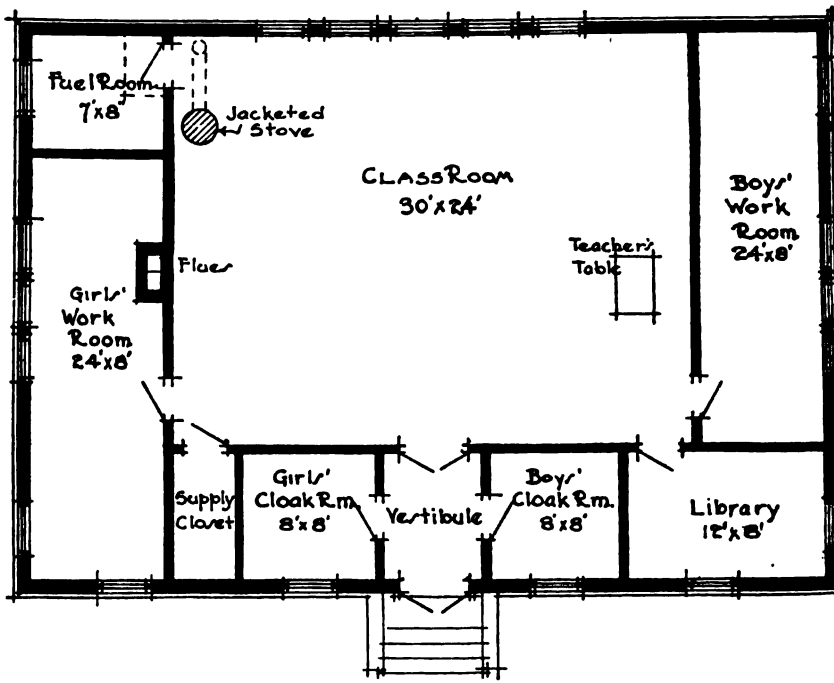

FIG. 3.—Floor plan of one-teacher school, Model 2.

moss green for the roof would make the building blend much better with the average country neighborhood than if it were treated in white. Any carpenter or builder should be able to take the measurements of these drawings and photographs and construct this building in exactly the same beautiful form.

Model No. 2.

The above floor plan of model 2 shows a one-teacher rural schoolhouse, with a classroom in the center of the building, and with the workrooms and library grouped around it on three sides. This building is also designed, as in model 1, to occupy a lot having an east or

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west frontage, and to make an entrance in the side of the building. If the front of the building is situated on a lot facing west, then the lighting of the classroom would come from the east, and the boys' workroom would receive the south light, the girls' workroom would receive north and west light, the library would have south and west light, the cloakrooms would both receive west light. However, this building could be located so as to face east and be equally well situated with reference to the lighting. The advantage in facing it west lies in the fact that the classroom would be shielded somewhat in winter from west and north winds. This plan is more elaborate than the first one, because it has two workrooms, one for the boys and one for the girls.

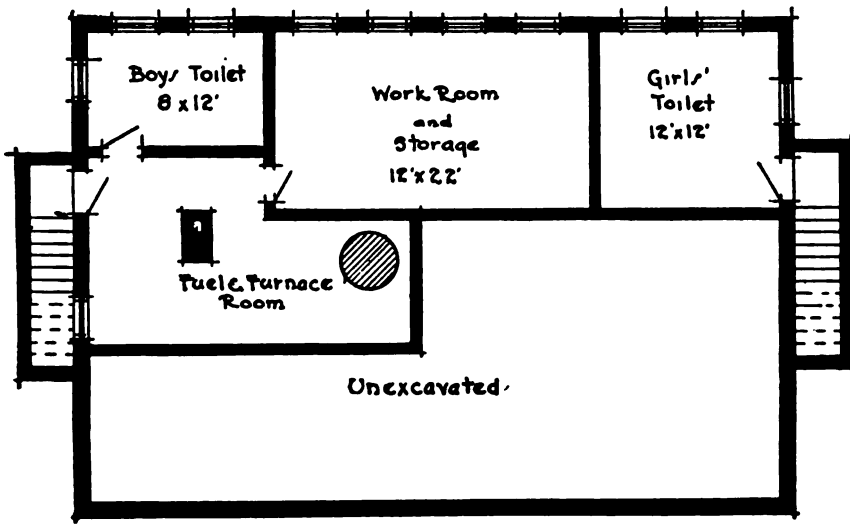

FIG. 4.—Suggested basement for Model 2.

This is a decided advantage. It gives room for different kinds of manual training equipment, and develops a sense of responsibility in both boys and girls by having special rooms for their special work. The library is not quite so large, but there are two small cloakrooms, one for the boys and one for the girls; in addition, there is a fuel room in the rear of the classroom and a small room for tools, drawers, and cases adjoining the girls' workroom.

No toilets have been planned in this building, and the basement would have to be arranged for them or else detached buildings used. The accompanying drawing (fig. 4) shows how the basement could be arranged both for heating apparatus and for the location of toilets and baths and offers suggestions to those neighborhoods with sufficient funds at hand and opportunity to supply running water.

The classroom, as was said, is situated in the middle of the building, with only one outside wall. The windows in this room have been

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grouped closely together on the rear and left of the children when in their seats. The windows are set 4 feet above the floor and are 3 feet wide and 8 feet high. The distance from the finished floor to the ceiling is 12½ feet.

Blackboards in this room are set on three sides of the room; none are on the window side. At the front end of the room, near the teacher's desk, the blackboard should be set 3½ feet above the floor and should be 3½ feet wide. On the other sides it is better to set the blackboards 28 inches from the floor and to make them 4 feet wide.

Wainscoting should be placed beneath the windows and beneath the blackboards all around the room. On the window side, this wainscoting should reach to the lower part of the window casing; on the other side to the chalk trough.

The walls above the wainscoting and those above the blackboards should be plastered with the best material and, before the building is used, should be tinted a light grayish buff or a very inconspicuous shade of grayish green. The colors of the red end of the spectrum should not be used in a schoolroom.

If a basement is provided under this building, the entrances to it should be from each end, beneath the workrooms, and these entrances should be guarded by some form of covering that would harmonize with the architectural design of the building. A furnace could be located at the most convenient place in the basement, preferably near the center, and from that point hot-air pipes could be carried to the workrooms, library, and classroom.

If provision is made for a fuel room in the basement, a fuel room on the main floor will not be needed, and that room could be utilized as a teacher's room. The floor plan was drawn on the supposition that no basement would be provided, and the location of a jacketed stove and chimney are indicated. If a basement is provided, as suggested, walks should extend around the building and provision should be made for tile drainage.

The classroom is 30 feet long and 24 feet wide and has desk room for 35 to 40 pupils.

The boys' workroom, situated immediately back of the teacher's desk, is 24 feet long and 8 feet wide. It is lighted entirely from one side and has a door opening into the classroom near the library room. Cases could be built in the outer end of the boys' workroom for tools and models used in connection with the shopwork.

The girls' workroom as shown is approximately 25 feet long and 8 feet wide and is lighted from two sides. A door opens into this room directly opposite the door into the boys' workroom, and thus allows passage along the wide aisle between the last row of seats and the inner wall.

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Blackboards should be set in both of these workrooms on the inner walls and should be 3½ feet above the floor and 3 feet wide. These blackboards can be used for many purposes, but are chiefly designed for drawings, lesson assignments, and plans in connection with the work done in these rooms.

The small room adjoining the girls' workroom, marked "storage room," can be fitted up with drawers and shelves for sewing materials and also for kitchen utensils.

The library room opens directly off the classroom, near the teacher's desk. This library is designed to be 10 feet long and approximately 8 feet wide. Bookshelves should be built around the wall in those spaces not occupied by the windows and the door. These shelves should not be more than 9 inches deep, and hence there will be room for a small reading table and a few chairs. The walls above the bookshelves should be tinted the same color as in the classroom.

The cloakrooms, opening left and right from the vestibule, have one door each and are designed to communicate only with the vestibule. Were it not for the fact that the blackboard space on the wall in the classroom opposite the windows would be greatly limited, a door should open into the classroom from each of these cloakrooms. This arrangement would give the teacher better control and would prevent some congestion in the cloakrooms, but unless the blackboards in the workrooms could be utilized for some of the regular class work this change would not be advisable.

To prevent annoyance, all doors opening into the classroom should swing out. This applies to the doors of the workrooms, library, vestibule, and fuel room.

The chimney passes up through the girls' workroom. This will permit the one chimney to serve both the jacketed stove or furnace and a range for the girls' workroom.

The floors of all rooms of this building should be double, except the vestibule, and that should be of cement or terrazzo. The upper floors in the other rooms should be made of hard pine, selected maple, or oak boards.

The wainscoting throughout the building should be stained a neutral brown, so as to reflect no high lights into the eyes of the pupils while they are at work. The roof should be of rather flat construction, preferably hipped.

The windows into the cloakrooms, as will be noticed, are set 6 feet above the floor, so that the walls beneath them can be used for clothing hooks. This provision will give plenty of light, and it also relieves the architectural features of the building to some extent.

The model from which this drawing was made was designed by Mr. William B. Ittner, of St. Louis. The drawing does not show

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the real beauty of the exterior. The model was not in condition for photographing, and this drawing had to be made instead.

The dimensions of this building are 46 by 32 feet. In rural communities where there are opportunities for utilizing the school for general social purposes, it would furnish plenty of space. The girls' workroom, the boys' workroom, and the library especially lend themselves to uses of this kind. With a range in the building, light refreshments could be easily prepared, and this, as every one knows, would add greatly to the success of any social undertaking. If a teacher who understands how to organize a district school to meet the demands of the community were located in such a building as this, it is needless to say that she could at once interest the whole community in the rural life problems undertaken in the workrooms as well as in the classroom.

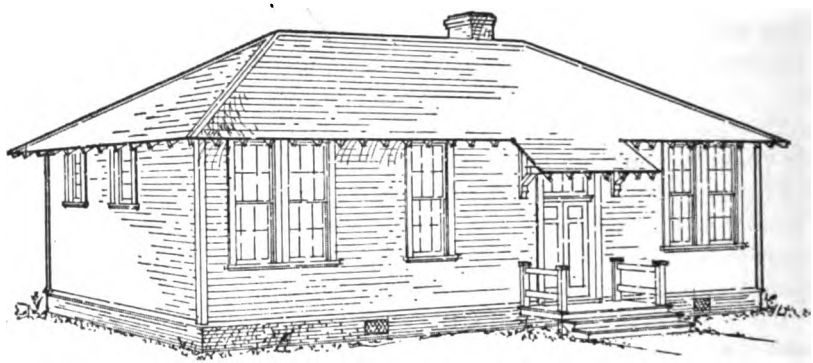

FIG. 5.—Sketch of one-teacher school designed by J. L. Sibley (See p. 107).

Naturally, this building should be located on good soil, with sufficient ground about it for agriculture and gardening, as well as for playgrounds.

Model No. 3.[1]

Model No. 3 represents almost the minimum of rural school equipment. Separate entrances connected with cloakrooms are made for the boys and for the girls. From these cloakrooms doors lead into the classroom, which, as will be seen, is designed for a district with comparatively few children.

The dimensions of the classroom are 18 by 24 feet. The architects have indicated the placing of 35 desks. This would give a little less than 13 square feet of floor surface to each pupil. This would not be sufficient, unless most of the children were of the primary grades. Such a building as this should be used for not more than 30 pupils.

In the rear of the classroom provision has been made for a fuel room, and also for a furnace which would introduce the fresh air into the room at a height of about 8 feet above the floor. The chimney is

[1] See plate 7.

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placed at some distance from the furnace on the other side of the fuel room, and is designed to have a vent flue opening from the schoolroom near the floor line, in this way utilizing the heat from the furnace to create a circulation of air in the schoolroom. Possibly it would have been better if the chimney had been placed near the center of the partition, so that the smoke pipe leading from the furnace to the chimney would not be so long, and hence less dangerous, and also to prevent dead air space near the window side of the room. However, this suggestion is not of great importance, because there is less danger of dead air space near the windows than on the opposite side of the building.

The storeroom off the fuel and furnace room is designed simply for brooms, brushes, and such material as a janitor would need. A separate entrance is marked for the janitor. This does not seem at all essential, but does make an easy method of introducing the fuel.

The classroom is lighted abundantly from one side alone. The windows are placed, approximately, 4 feet above the floor and run up to the ceiling. It will be noticed that the ceiling of the cloakrooms and the fuel room will not be so high as that of the classroom on account of the method of roofing. This will be a definite saving and will introduce no serious difficulty.

Two small windows, one in the rear and one in the front of the classroom on the right of the pupils' desks, may be included for the purpose of ventilation during warm weather. If these windows are inserted, they should be placed above the blackboards and so arranged that they may be opened easily from the floor. They are not designed for light, but are "breeze windows." These will relieve the rather bare side of the building, and give a better general effect architecturally.

The rather elaborate steps and overhanging roof give a quaint effect to the building, and would not be at all difficult or expensive to construct.

The light in the cloakrooms is preserved by cutting away the broad eaves immediately over the windows in front of the building.

As noted above, this building is planned for almost the minimum activities of a rural school, and may be of service in those communities which can not undertake to build a more elaborate structure, designed for a larger educational program.

The chalet effect in this building would be especially pleasing on a bench level of a hillside, with the windows facing up or down the valley. Such a position should be chosen only when there is a sufficient amount of level ground to afford playgrounds and such gardening as a school of this size would undertake. The building should face south, preferably, so as to get the west light in the classroom and the south light in the cloakrooms. If it faced north, the classroom would

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get east light, which is frequently better than west light, but the cloakrooms would not get as much sunshine.

This building especially lends itself to the clapboard form of construction; that is to say, the weatherboarding could be unplaned lumber fastened to an inner sheathing and then stained some color that would blend with the trunks of the forest trees. The long, flat roof and extended eaves give it beautiful lines, and if the grounds were treated to suit the building it would make a most attractive small rural schoolhouse. This building should not be treated in any other way than in wood; it would not suit brick, stone, or cement.

The cost of such a building ought to be very low, for it would require very little lumber, and the plan is so simple that any builder could easily construct it from the data given in the floor plan and the photograph. These are all drawn to scale, and although they are much reduced in the photograph all the working drawings could be made up from the data here given.

In the classroom in this building the blackboards are on three sides of the room, none at all being on the window side. The main blackboard is on the wall directly opposite the windows. Since this building is especially designed for primary pupils, the blackboards should not be set above 28 inches in height, except at the teacher's end of the room. The width of the board should not exceed 3½ feet.

Model No. 4.

Drawings showing the basement and floor plans of model 4 are here inserted and described. This model was designed for a small village school or a consolidated rural school in which two teachers would be sufficient. The basement plan includes toilets and baths for both girls and boys, with dressing rooms attached, and a fuel and furnace room.

In order to economize space and lessen expense, entrances to the basement rooms are made at each end from the outside of the building. Some simple harmonizing covering should be devised for the stairways leading down into the basement, and walks should be constructed along the whole front of the building and on the two ends leading to the basement steps.

The entrance to the furnace room could be made through the boys' bathroom or a separate door for it could be opened on the outside. It would be simpler and cheaper to open this door through the boys' room, as indicated.

The drawing for the basement shows half of the space underneath the building excavated. If funds permit and the location be suitable, the whole area underneath the building could be excavated, and, in addition to the toilets and baths and furnace room, workrooms for boys and girls could be easily constructed. This, of course,

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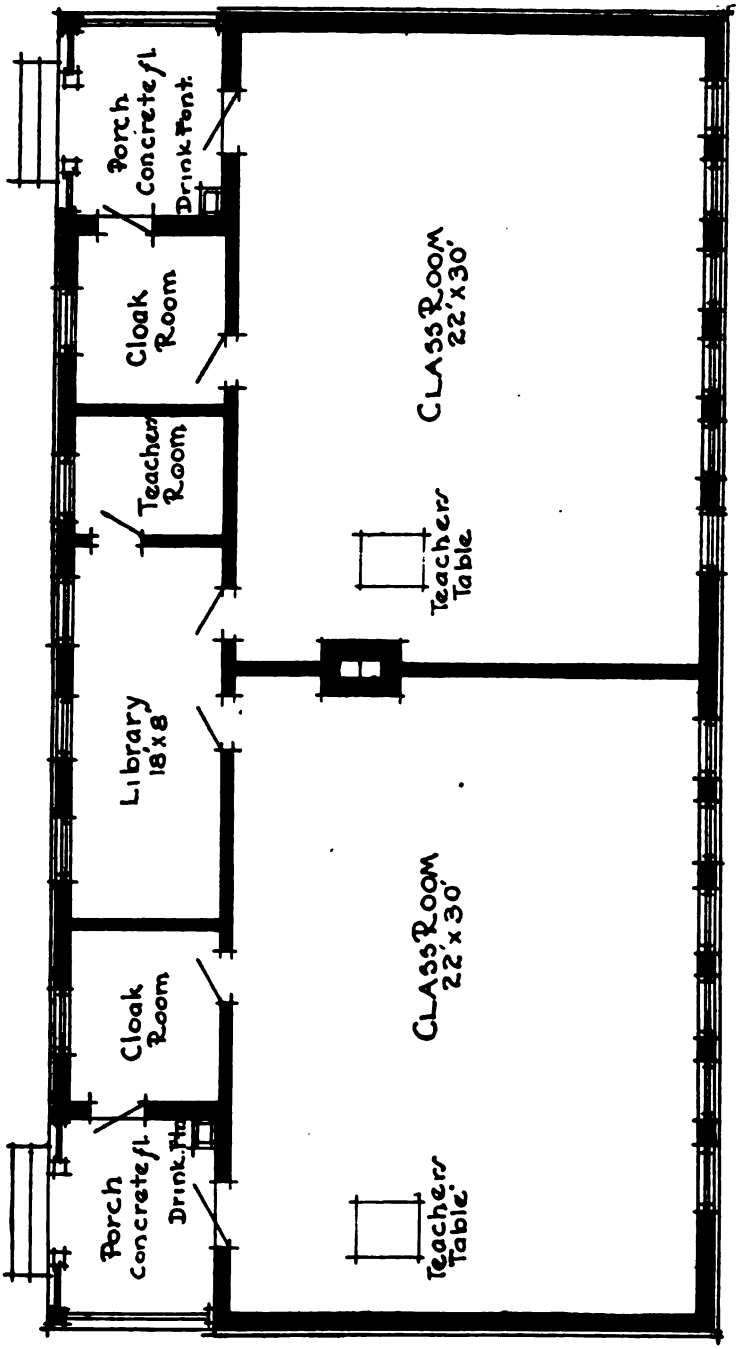

FIG. 6.—Floor plan, Model No. 4. Two-teacher school.

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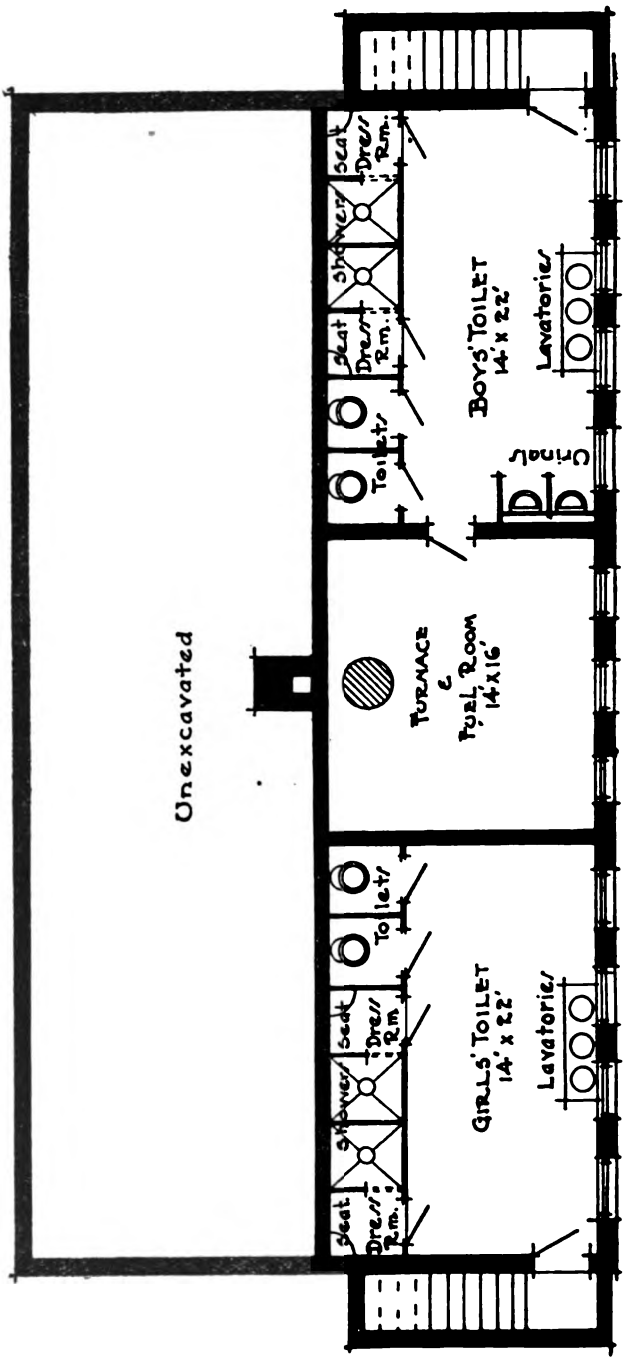

FIG. 7.—Basement plan, Model No. 4. Two-teacher school.

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would necessitate lifting the building somewhat higher above the surface of the ground in order that the excavation would not be too deep to interfere with sufficient light and proper ventilation in these workrooms. However, the building should not be lifted much higher above the surface of the ground than shown. Light could be arranged for two sides in each of these rooms. The stairways to the basement could lead into the workrooms rather than into the toilet rooms, and connecting doors from the workrooms to the toilet rooms could be easily provided.

The drawing shows a shower bath and two dressing rooms for the boys, and the same conveniences for the girls. The furnace room is shown sufficiently large for the storage of fuel.

The chimney is set to pass up through the center of the building, through the partition between the two classrooms. If a workroom for the girls is devised in the basement, an additional flue in this chimney should be constructed to accommodate a range.

The basement plan as shown makes provision for the introduction of ample light and sunshine. A basement of this sort, with the sanitary appliances indicated, could not be equipped unless running water and either a sewer outlet or an ample septic tank are available in connection with the toilets and baths.

The floor of the basement rooms should be carefully cemented, and the walls plastered with hard cement plaster; and some form of waterproof paint should be used throughout the rooms.

The ceiling of the furnace room should be carefully constructed, so as to avoid the possibilities of fire from the furnace. If need be, the furnace could be set in a pit a foot lower than the floor of the basement; but, with such an arrangement, especial care should be taken to prevent seepage of any water into the pit.

The drawing also shows that the dressing room, the stalls for the seats, and the urinals all face toward the windows. This will insure better sanitary conditions and will also make it much easier for the teachers to inspect the condition of these rooms.

A fresh-air inlet for the furnace should be built from the window side and the duct be so placed that it will not be in the way of the fuel. The location of this duct will depend somewhat on local conditions; it is therefore not shown in the drawing.

The floor plan (fig. 6) of this building shows two entrance porches, a cloakroom for each classroom, a library connecting with each classroom, and a teachers' room off the library.

The dimensions of the classrooms are 22 by 30 feet, with light entirely from one side. It seems unnecessary to introduce breeze windows into either of these classrooms, because the outer door in each room

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opens on a covered porch, and, if a breeze is needed, this door can be left open. Additional help in the way of a breeze could also be obtained through the library by opening the doors from the classrooms into the library and throwing open the windows of the library.

The windows in each classroom are grouped to the left and well to the rear of the pupils when seated at their desks, thus insuring plenty of light. The windows are designed to be 3 feet wide and 8 feet high and to be set 4 feet above the floor. The mullions between the windows are to be not greater than 12 or 14 inches. This arrangement of the windows would give a glass surface a little greater than one-fifth of the floor surface and, with this size of classroom, would insure abundance of light under any ordinary conditions of proper orientation. Sufficient blackboard room is furnished by using the rear and front walls of each classroom and those parts of the inner walls not broken by doors. No blackboards should be placed on the window side.

The height of the classroom should not be greater than 12½ feet from finished floor to the finished ceiling, as indicated in the previous plans. The finishing and tinting of these rooms should follow the general plan indicated in connection with the other models.

If it seemed better to dispense with the teachers' room and instead supply a wardrobe for each teacher, the library room could be enlarged to advantage by including the space marked off as a teachers' room. This would give a library room 24 feet long and 8 feet wide, which could be made the most attractive and inspiring place in the building.

Doors are indicated in the cloakrooms opening out on the porch, so that when children come to school they may hang up their wraps before coming into the classroom. However, these doors could be dispensed with, and the inner door indicated would suffice. This, of course, would make more congestion in the cloakrooms, but it would give the teacher better control, and thus prevent pilfering and carelessness in the cloakroom.

Warm-air ducts are shown in the corner of the library room and the teachers' room. These come from the furnace below and should open into the classroom approximately 8 feet above the floor. The size of these ducts will depend somewhat on the location of the furnace and their complete insulation from the cold air underneath the building. There ought to be also a warm-air duct opening into the library. The location of this is not indicated, but can be easily supplied in connection with the duct already indicated in the library. In rigorous climates foot warmers should be introduced along the front of a seat situated near the front of each room.

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The windows opening into the cloakrooms, library, and teachers' room should all be of the same dimensions as those in the classroom and should be located in the same manner.

The porches should have cement floors and, instead of a boxed entrance as indicated in the photograph of the model (plate 9), steps could be arranged partly inside and partly outside the full length of the front side of the porch. The open end of the porch should be shielded by a banister or a solid wall 3 or 4 feet high.

The drawing suggests that a water cooler could be located in the inner corners of the porch. This position also would furnish excellent opportunity for a drinking fountain and would be safe except in extreme cold weather, when the water could be turned off and some temporary arrangement made for supplying proper drinking facilities. Local conditions and climate will have so much to do with these arrangements that only suggestions are possible.

The photographs of the views of model 4 show how the building would appear from the outside. The only difference between the photographs and the description given is with reference to the entrance steps to the porch. While the illustration hardly indicates it, this is a beautiful, simple model for a two-teacher country schoolhouse. These models, used as they have been in many different parts of the country, were not in good condition for photographing, so that they do not appear to the best advantage in the illustrations.

The roof has wide eaves and is comparatively flat. No attempt at decoration is manifested aside from pleasing proportions.

This building could be treated either in wood, cement, or brick in an effective way. If constructed of wood, it should not be painted white, but in a color to harmonize with its environment.

If eaves troughs are used on this building, the leaders should be placed in the rear so as not to harm the effect of the lines of the front. If a tile drain were placed about the house, as indicated in previous discussions, and the steps to the basement were properly and effectively guarded from beating rains, no eaves troughs would be necessary, for the roof is wide and low and the water could be carried off by the drain as fast as shed from the roof.

If a building following this model were constructed on a good location, fronting east or west, and the garden treated to harmonize, there is no doubt that a very beautiful and attractive rural schoolhouse would result.

The writer is indebted to Mr. William B. Ittner, of St. Louis, for constructing this model on a floor plan which was suggested to him.

This plan is commended to those village and country school officers who desire to get a good building with minimum cost. Those who undertake to copy it ought to try to get the same effect in the proportions as here shown.

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Model No. 5.

Model 5 represents a three-teacher school building, having a library and a girls' workroom on the main floor, and a basement, including baths and toilets for both boys and girls, a workroom for the boys, and provision for two small furnaces and a coal bin connected therewith.

Entrance to the basement is gained from either end of the building through a vestibule. The girls' toilet and bathroom is not accessible from any other part of the basement. The entrance to the boys' workroom is near the foot of the steps leading to the basement, and the boys' toilet is entered from an adjoining door. Entrance to the furnace room and coal bin is down the stairs used by the boys.

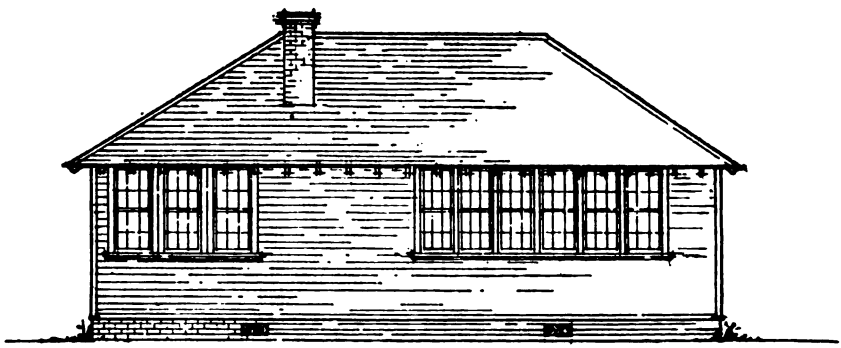

FIG. 8.—Rear elevation, rural school designed by J. L. Sibley (see p. 107).

A three-teacher schoolhouse is one of the most difficult to plan. In reality this building is what might be termed a "four-roomed" building; but the space for one classroom and its necessary cloakroom has been utilized for the library and the girls' workroom. A building of this type would be well adapted for a centralized or consolidated school in a sparsely settled district.

Two furnaces are shown.[1] One large furnace would be ample, and it could be situated nearer the center of the building, relieving the boys' workroom, and making it easy to conduct the heat from the furnace to the various rooms in the building. If this change from two furnaces to one is made, as indicated, special care will have to be taken to provide an ample inlet for the fresh air, and this would probably be done better by constructing a narrow passageway ending near the furnace in a galvanized duct. This would prevent a good deal of friction and insure a better supply of fresh air.

Dressing rooms for the boys could be easily constructed along the inner wall next the workroom.

The illustration shows three showers near the outer end of the girls' toilet room and two near the entrance.[1] It seems that three showers

[1] See plate 3B.

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would be ample, and that the two squares marked "showers" near the steps could be utilized for dressing rooms.

Ample lighting for the basement rooms is indicated, especially if the small furnace in the boys' workroom is removed and a larger furnace put nearer the center.

If this building is located on a slight elevation, in good soil, the basement can be excavated to the depth of 4½ feet, and the distance from finished floor to the ceiling of the basement would be 9 feet, thus giving windows 4 feet in height on those sides of the basement requiring the greatest amount of light.

The plan has been designed for a consolidated rural school where running water is available, where good drainage can be obtained, and where a septic-tank disposal can be introduced.

Plate 8A was made by removing the roof of the model, raising the model on edge, and photographing it down through the interior.

It will be necessary to face this building north or south in order to insure the proper lighting for the rooms above ground as well as for those in the basement.

The classrooms are 30 by 24 feet, and this photograph of the interior shows provision for 48 desks in each room. This is too great a number; instead of 6 rows, only 5 should be provided. This will give better space for aisles and will not overcrowd the room. In the primary grades, however, if conditions demand 6 rows, they may be introduced, because desks for primary pupils are not so large as those for the upper grades.

Each classroom is lighted entirely from one side, and the desks are so arranged that the pupils get the light from the left side. The windows are placed to the rear and left of the pupils when seated at their desks, each room being provided with 5 windows, 3 feet wide, 8 feet high, and set 4 feet above the floor.

The distance from finished floor to the finished ceiling in all of the rooms on the main floor is 12½ feet.

In addition to the three classrooms, a girls' workroom and a library are provided on the main floor. The girls' workroom is lighted from two sides; the library gets its light from one side only. It seemed better to give the girls' workroom the advantage of the light and ventilation, because such work as they engage in will necessitate in part, at least, better light than would ordinarily be needed in those parts of the library some distance from the windows. The space near the windows in the library can be utilized for reading tables, and the space nearer the halls can be left free for bookstacks and magazine tables.

It will be noticed that the chimney is so placed as to come up through one wall of the corridor and a cross wall between two class-

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rooms. This will necessitate a very little amount of projection either into the corridor or into the classrooms.

Provision is made for inlets for the warm air, if a hot-air furnace is used, and for exits on the same side for each room. The arrangement of these ducts and exits should be studied very carefully, so that each room could ordinarily be kept at the same temperature.

By reason of the foreshortening in photographing the interior of the model, the walls seem to be spread across the center and make the floor look a little irregular; but this photograph has been introduced in preference to line drawings, for it shows a great many more features than an ordinary drawing could show.

A cloakroom, opening into the classroom only, is shown at one end of each classroom. These are lighted from the outside and are ample for all of the children in each room. Provision for two doors, opening into the corridor, was made for each classroom. If it should seem more advisable to introduce but one door from the classroom into the corridor, this change can be made without any difficulty.

From the vestibule a series of steps leads up to the corridor and another series down to the basement. Double doors are indicated in the model at the head of the steps leading up into the corridor. This isolates the corridor and the rooms opening into it from any possible contamination of the air from the basement. These doors at the end of the corridor should be fitted with large panes of glass, so as not to obstruct the light. Outside doors are shown at each entrance, and these could be left open during the school session, thus preventing bad air from getting into the corridor or classrooms from the basement. These outside doors show large transoms or windows above. It will not be necessary to arrange these windows as transoms; they are needed simply for the purpose of throwing plenty of light across the vestibule into the corridor.

The photograph (Pl. 5C) showing the front of the model will make the entrance doors clearer, and will also show the method of lighting the classrooms and the front part of the basement. The decorations in the upper parts of the windows opening into the classrooms are not essential to the beauty of the building. They represent little artistic touches which may be introduced if desire prompts. Unfortunately, the pillar on the right of the entrance as shown in the cut of the front of the model was out of plumb, and makes the model appear awkward. Attention should be called to the low, projecting roof, and especially to the extension of the roof over each entrance to the building.

The question might arise regarding the necessity of two entrances, one marked for the boys and the other for the girls. There is no need of limiting the boys to entrance at one point and the girls to another. However, there should be a door in the rear leading out toward the

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playground, and since the basement on the girls' side is carefully protected, there is no reason why this door could not be used by both boys and girls, and the same is true of the front entrance.

If this building were located on a lot fronting east or west and if there were sufficient space to remove the building far enough from the roadway to avoid dust and disturbances, it would be entirely justifiable to face the broad side of the building toward the roadway, thus making the two entrances equidistant from the gateway leading from the street or roadway. In fact, this building is beautiful from any point of view and easily lends itself to proper orientation.

The height of the classrooms from finished floor to ceiling should not be over 12½ feet, and the drawing shows the corridor 12 feet wide.

The cloakrooms are drawn 6 feet wide. The location of the doors into the cloakrooms can be seen by studying the cut showing the interior.

The model was designed by Cooper & Bailey, of Boston. The building can be constructed of any ordinary material, but is especially adapted to concrete or stucco. The model is painted white, and hence is shown in the photograph in this color. It would ordinarily blend better with the environment if it were a dull gray or, if constructed of wood, a rich brown. The color of the roof should be made to harmonize with the construction. A building following this plan could be constructed at a reasonable cost, for it demands no superabundance of material and is in every way simple in construction.

Model No. 6.

The floor plans and views of the model here introduced show an unusual type. The model represents a building having four classrooms, with a cloakroom attached to each; two separate excavations for basement, in which are rooms for toilets, baths, furnaces, and fuel; connecting pergolas; and an open-air theater or assembly room.

The accompanying drawing (fig. 10) of the basement plan shows that only half of the space covered by the two parts of the building is excavated and that the entrances to the basements open to the rear and outside of the building. Toilets are located in each case where they will be well lighted, and shower baths and dressing rooms are indicated in each side. The basement rooms are to be lighted from one side and the outer end. A chimney from each basement extends up through the connecting walls between the classrooms and emerges at the comb of the roof. The furnaces can be so placed as to make it easy to secure fresh air, and the ducts leading to the rooms above can be easily constructed. If instead of hot-air furnaces, hot water or low-pressure steam seems preferable, one boiler would be sufficient and the heat could be conveyed in carefully protected pipes underground

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from one building across the court to the other. This basement plan could be used only in communities furnished with running water and sewer connection or septic-tank disposal.

The floor plan represents four classrooms and a cloakroom at the outer end of each. These classrooms are 32 feet long and 24 feet

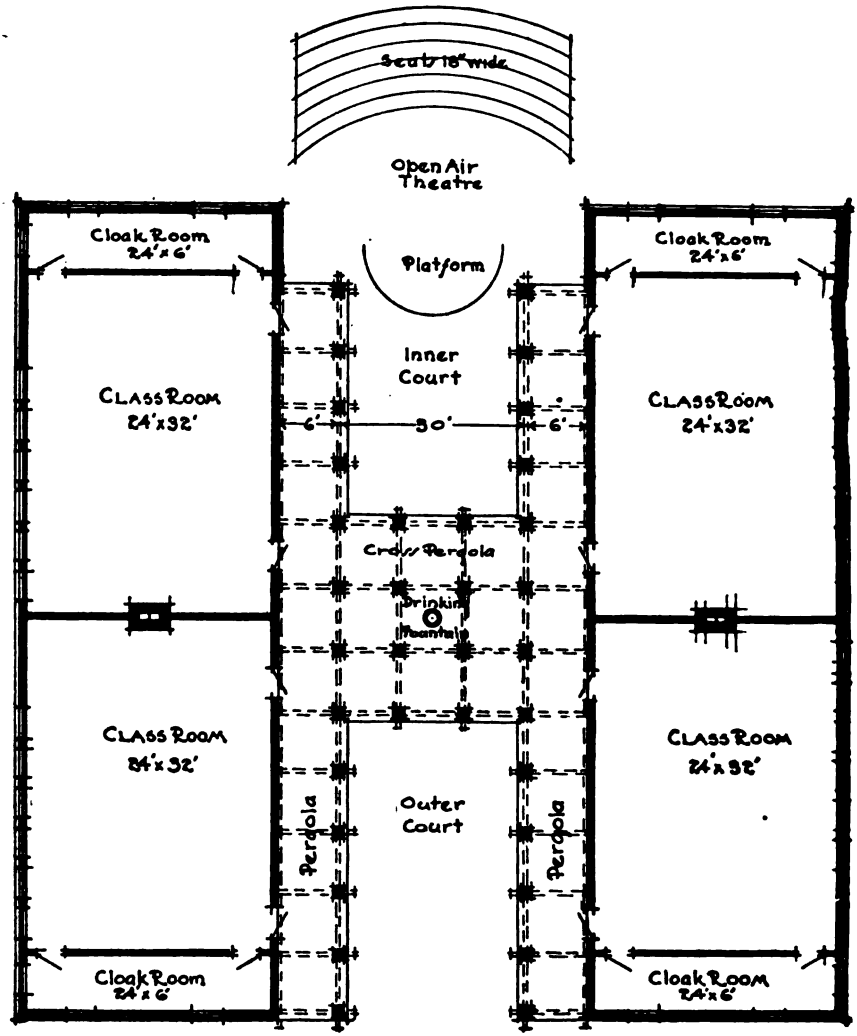

FIG. 9.—Main floor plan, Model 6.

wide. The cloakrooms are 6 feet wide and extend the entire width of each classroom. This makes it possible to introduce windows in the ends of the building for lighting the cloakrooms, thus relieving the architectural features of the building.

The unusual and interesting part of this building lies in the fact that no halls have been provided; their place is taken by pergolas,

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connecting the two buildings and opening into the court. There is also shown a series of semicircular amphitheater seats for open-air classes and assemblies. This model was designed for the warmer parts of our country, and especially for those sections of the South and Southwest where the climate will permit much outdoor work. The building can be used not only for school work, but for social and educational purposes by the whole community.

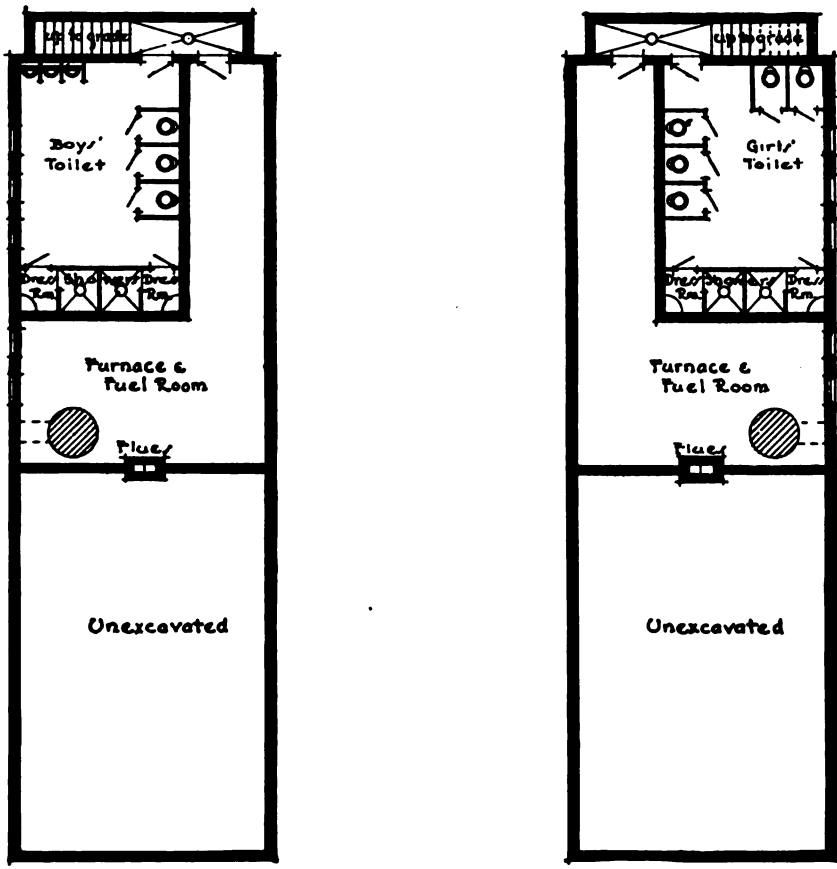

FIG. 10.—Basement plan, Model 6.

The building may face either north or south. In the warmer parts of the country it would be preferable for it to face north, so that an audience occupying the amphitheater seats in the rear would not have to face the sunshine. In the cold or windy parts of the country a good deal of protection could be secured if the building faced south. In no case should the building face east or west, because, if so placed, the classrooms could not be properly lighted.

The pergolas should be covered with vines, preferably grapevines or some hardy perennial, so that in time the whole structure would

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not seem to be composed of two parts, but would be blended into a unit.

Two doors are shown in each classroom, one in the front and one in the rear end of each room. These open directly out beneath the pergolas and into the court. The width of the court, as shown in the drawing, is 30 feet. This will not separate the two parts of the building too far, and at the same time it will give sufficient room for the open-air theater and the court to accommodate not only the members but the patrons and friends of the school.

In order to get a little more clearly before the reader the idea in mind in drawing these plans, the following uses of this open-air theater are suggested: In the first place, all the children in the school could be gathered from their classrooms to these seats in a minute or two, because the children of each room could march separately and directly to the theater. Hence, in good weather, the morning's exercises for the whole school should be conducted here. Chorus work throughout the day, or regular classes from any of the rooms where blackboards are not necessary, could be conducted here. Entertainments of all kinds, weather permitting, could be given without any danger of disturbing the school building, and, above all, in the open air. The pergolas offer an excellent opportunity for simple decoration for evening entertainments; two or three dozen lighted Japanese lanterns hung from the beams of the pergolas would make a beautiful picture. The rear court could be used as a stage, and its convenience to cloakrooms and classrooms would easily suggest how these might be used as dressing rooms whence the actors could emerge without the need of curtains. Flowers, plants, and shrubs in this rear court could be arranged with the idea that the space is to be utilized for a speaker's platform, for a theater stage, or for the conductor of a chorus.

Neighborhood clubs, farmers' institutes, and all the social and educational gatherings of the neighborhood might utilize this open-air theater.

It will be evident to anyone considering the proper site for such a building that the amphitheater seats could be more easily and artistically placed if the building were situated with these seats resting against a hillside or a convenient mound about which were vines and shrubs and trees.

The upper tiers of seats in this amphitheater should be about 16 inches high, and the lower tiers should be adapted to the smaller children and be about 12 or 14 inches high. The width of the seat should be great enough to provide space just behind the back rest for the feet of those sitting immediately behind, and thus keep them from interfering with the backs of those sitting one step lower.

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No one who has not felt the delight of such an auditorium as this can be expected to appreciate fully the pleasures and comforts it brings. In this auditorium questions of ventilation do not enter, and it would certainly emphasize in a striking way to all the people who might frequent it that there is far less danger of taking cold in the open air, when properly clothed, than in ill-ventilated rooms. Such an open-air "room" as this would be the most useful, the most delightful, and most educational place about the whole building.

The cross pergolas connecting the centers of the two buildings should be 12 feet wide at least, and a bubbling fountain should be erected at their center. The waste from this could be piped directly to a waste-water exit in one of the basements. A fountain located at this point would be easily accessible to all of the children and to anyone else attending exercises in the theater. If it should seem necessary to have more than one fountain, they could be arranged for at the same point.

The classrooms receive light from one side only, to the left of the children when seated at their desks. Each window is 3 feet wide, 8 feet high, and is set 4 feet above the floor. Instead of the ordinary sliding sash, casement windows should be supplied to this building, which would open directly out and be so hinged and guarded that they could be held at any point without danger of being broken by the wind. Plate 26B is inserted to show this window arrangement in one of the semiopen-air rooms of a Louisville school building. This type of window sash calls for special care in construction and arrangement, but can be imitated with success in a rural school.

This building would easily accommodate 140 to 160 pupils of the elementary grades and 100 of high-school grade.

Several serious omissions in rooms needed in such a building as this have doubtless occurred to the reader; no library, no workrooms, and no offices for the teachers have been planned. They have been purposely left out of this plan; not that they are not absolutely essential, but that they could be provided in separate buildings. This form of building permits of front extension without any serious disturbance to its unity. In drawing these plans without these several rooms the thing in mind has been the construction of four classrooms, with the accessories mentioned, at the very lowest possible cost. By referring to the photographs representing the model it will be seen that the hipped roofs of each half of the building are low, with wide eaves, and hence that all the walls are of the same height. If the building were constructed of wood, each piece of studding would be of the same length, provided the foundations were level. Altogether the construction is reduced to its simplest elements, especially as the expense of halls is entirely eliminated.

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These plans are offered, not as perfect and complete models, but as hints toward greater utilization of the open air for classes, assemblies, and general social work.

The building should be located on ample ground, and the trees, shrubs, and gardening effects should be made to harmonize with the atmosphere of freedom and space suggested by the courts and the open-air theater.

Thanks are due Mr. William B. Ittner, of St. Louis, for the construction of the model on floor plans furnished him. The photographs do not give an adequate idea of the beauty of the model.

Plate 11A represents a one-teacher rural school in York County, S. C. The floor plan (fig. 11) shows a classroom 24 by 32 feet, a cloakroom 16 by 6 feet, a teacher's room 8 by 6 feet, and a workroom 12 by 24 feet. The open porch is plainly shown in the view. There are three outside doors, two leading into the classroom and one into the cloakroom. The windows of the classroom are well grouped on the left side of the pupils, and two windows open in the rear. The locations of the windows in the workroom and the teacher's room are shown in the floor plan.

This building, though it is far above the average, could be improved in the following ways:

A basement could easily be constructed beneath it. An examination of the photograph shows that the building is resting upon narrow brick piers.

A building like this 50 feet in length, if placed on high ground, or, preferably, ground sloping to the rear, would offer easy opportunity for installing in the basement a furnace which would heat the classroom, the workroom, and the teacher's room. The basement would offer abundant space for the installation of toilets and baths and a workroom for the boys, the workroom on the main floor being reserved for the girls. With this change there would be no reason for the rear door opening from the classroom; hence the space devoted to the cloakroom and the teacher's room could be lengthened 2 feet, the cloakroom shortened slightly, and the teacher's room could then be transformed into a library and teacher's room with more satisfactory dimensions.

The cloakroom would be safer and better lighted if a large window took the place of the door. Pupils would then have to enter the cloakroom from the classroom, thus giving the teacher complete control and preventing many annoyances.

The following drawing (fig. 12) represents a rearranged floor plan for this building. No change would be necessary except to introduce a window in the cloakroom instead of a door, to close the rear door from the classroom, and to widen the window in the library to 4 feet.

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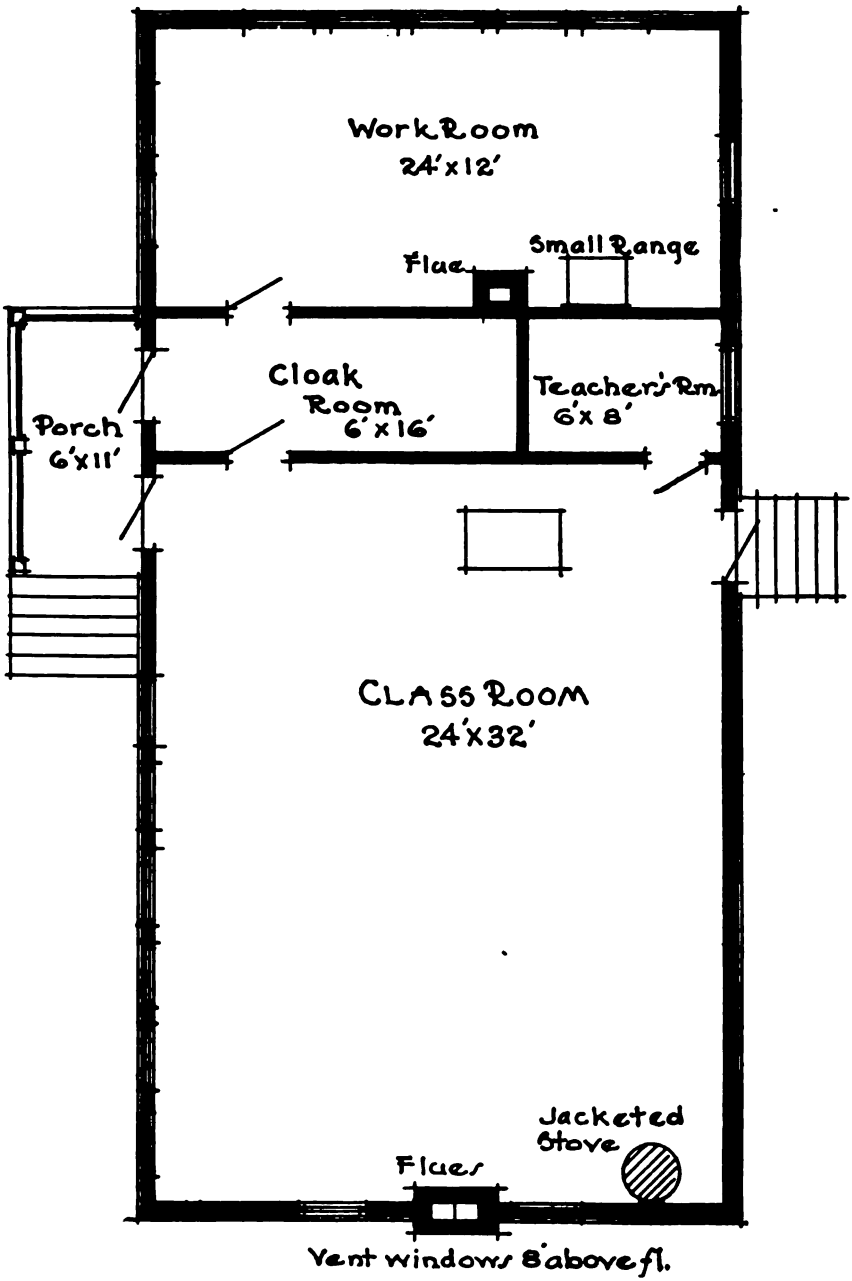

FIG. 11.—Floor plan, one-teacher rural school, York County, S. C.

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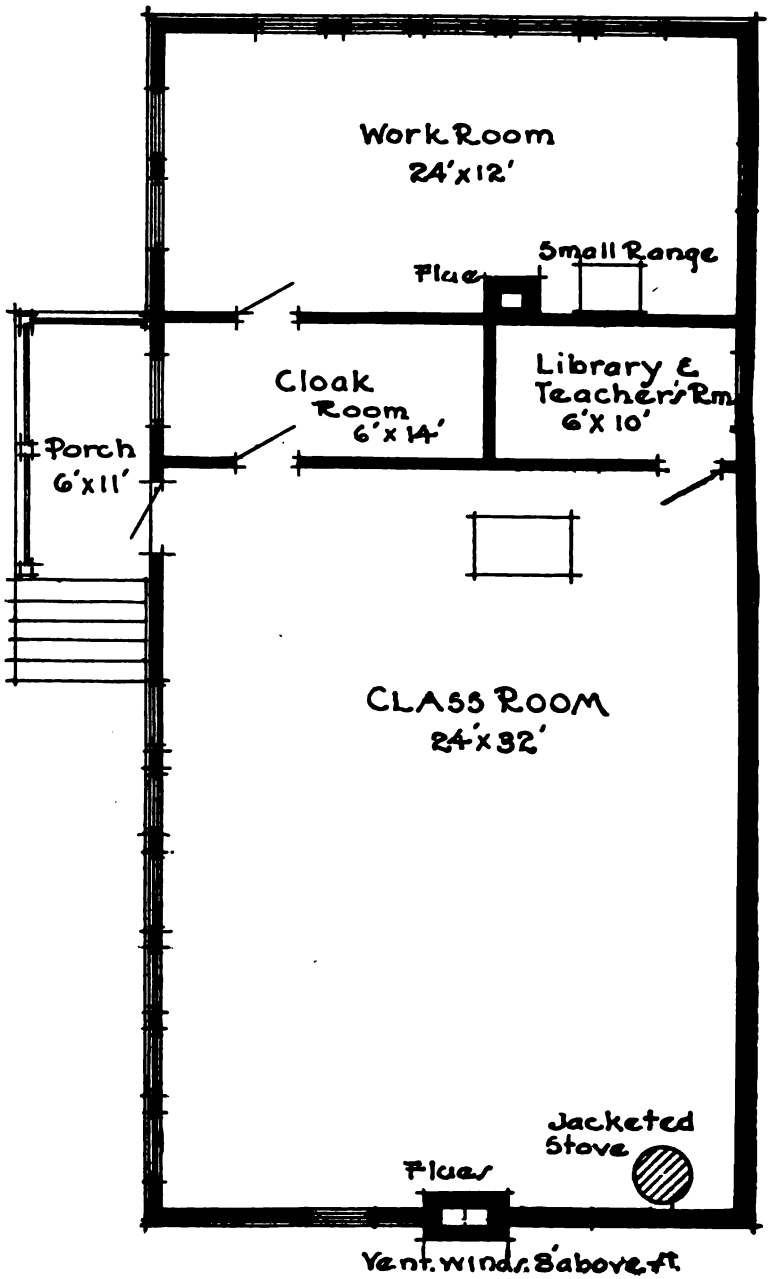

FIG. 12.—Rearranged floor plan of building shown in fig. 11.

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Instead of the two windows in the rear being at the same height above the floor as those on the left of the pupils, they should be set at least 6 feet above the floor, so that the blackboard could extend across the rear end. These windows could then be used only for "breeze" in hot weather.

The original drawing shows a platform for the teacher set near the front door. The drawings for the floor plan show no platform, and the desk of the teacher is moved to the opposite side of the room. This is a better position, because the children's eyes are shielded from looking toward the windows when attending to the teacher, and the teacher's desk is out of the way of the children going to and from the cloakroom before and after school; further, it would give the teacher better position for managing the classes and better supervision over workroom, library, and cloakroom.

Some objection might be offered to the length of this building in comparison with its width, and were it not for the simple but rather graceful porch, this objection would carry more weight. As it is, the building does not look out of proportion and shows good lines.

Figure 13 and Plate 40A represent the floor plans and an outside view of a one-teacher rural school designed by J. H. Felt & Co., architects, Kansas City, Mo.[1] These plans anticipate either the construction of a new building or the remodeling of an old building. For example, if an old building in the form of a classroom without any of the conveniences attached were enlarged by adding the hall with its attached cloak racks, the workroom, the niche for the heater, and the various other elements in the front of the building, by rearranging the windows, and changing the doors, it would be an easy matter to make over an insanitary and inconvenient one-room building into this hygienic and modern structure.

There are certain features of this building worthy of attention: The niche in which the heater is placed could be made fireproof at little expense. The fuel need not be carried into the house. The exits for the foul air are brought into contact with the chimney, and in this way the movement of the air is hastened. The workroom is shown with folding doors between it and the main schoolroom. These doors may be left open, or they may be closed in case the work within this room disturbs the pupils in the classroom. A blackboard may be placed under the high windows in the rear, as well as on the wall in the front of the schoolroom. Further, if the windows on the right side of the workroom were placed higher, say 7 feet above the floor, a blackboard could be introduced across the entire end of this room, which would seem desirable. If the windows on the left of the classroom were all moved back nearer the left rear corner, as the children sit at

[1] Thanks are due the architects for the use of this revised floor plan and the photograph of the building.

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their desks, better light would be obtained, because less of it would be in the children's eyes.

This plan could be improved somewhat by slight reconstruction, the result of which should be a building with a single workroom for all, one cloakroom, a teacher's room, a library, and a classroom.

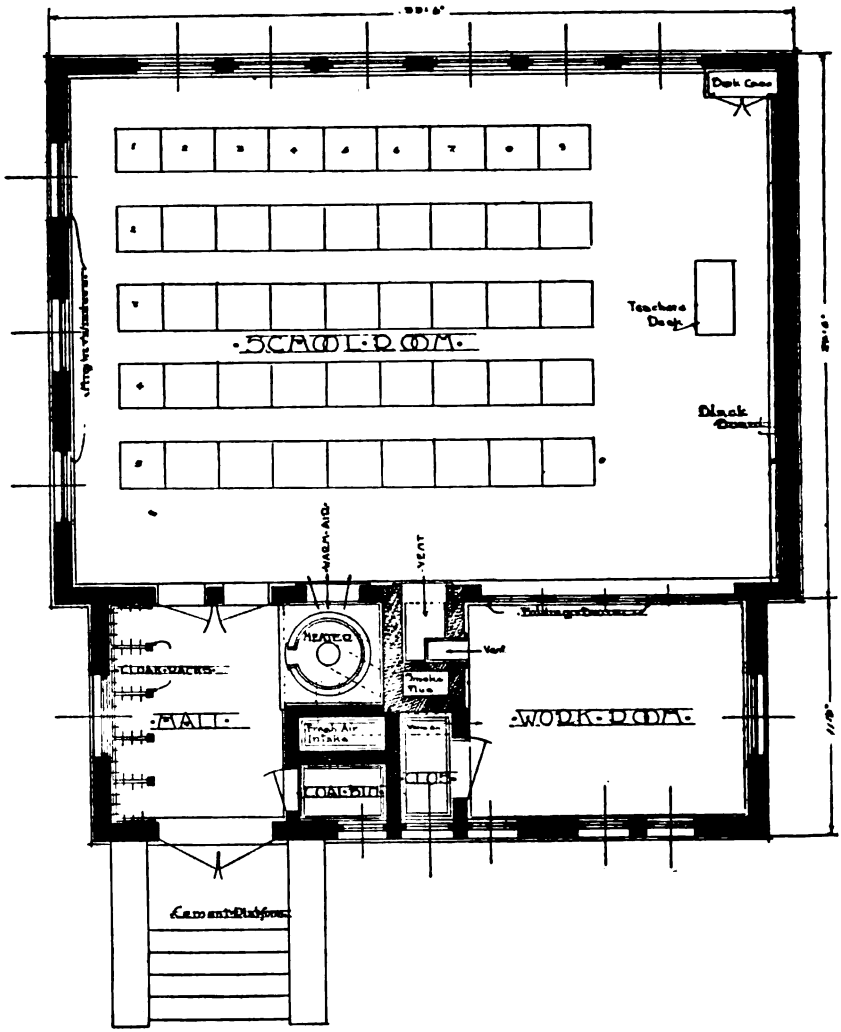

FIG. 13.—Floor plan of model one-room school, showing seat room. J. H. Felt & Co., Kansas City, Mo., architects.

If a basement could be constructed under this building, it could be used for the furnace and such other conveniences as community conditions would warrant. Without a basement a jacketed stove could be set as indicated. A separate flue should be constructed in the workroom to furnish opportunity to use a small range for domestic

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science work. If it seemed best to separate the workroom into two parts, a partition could be erected between the door and the flue in the workroom.

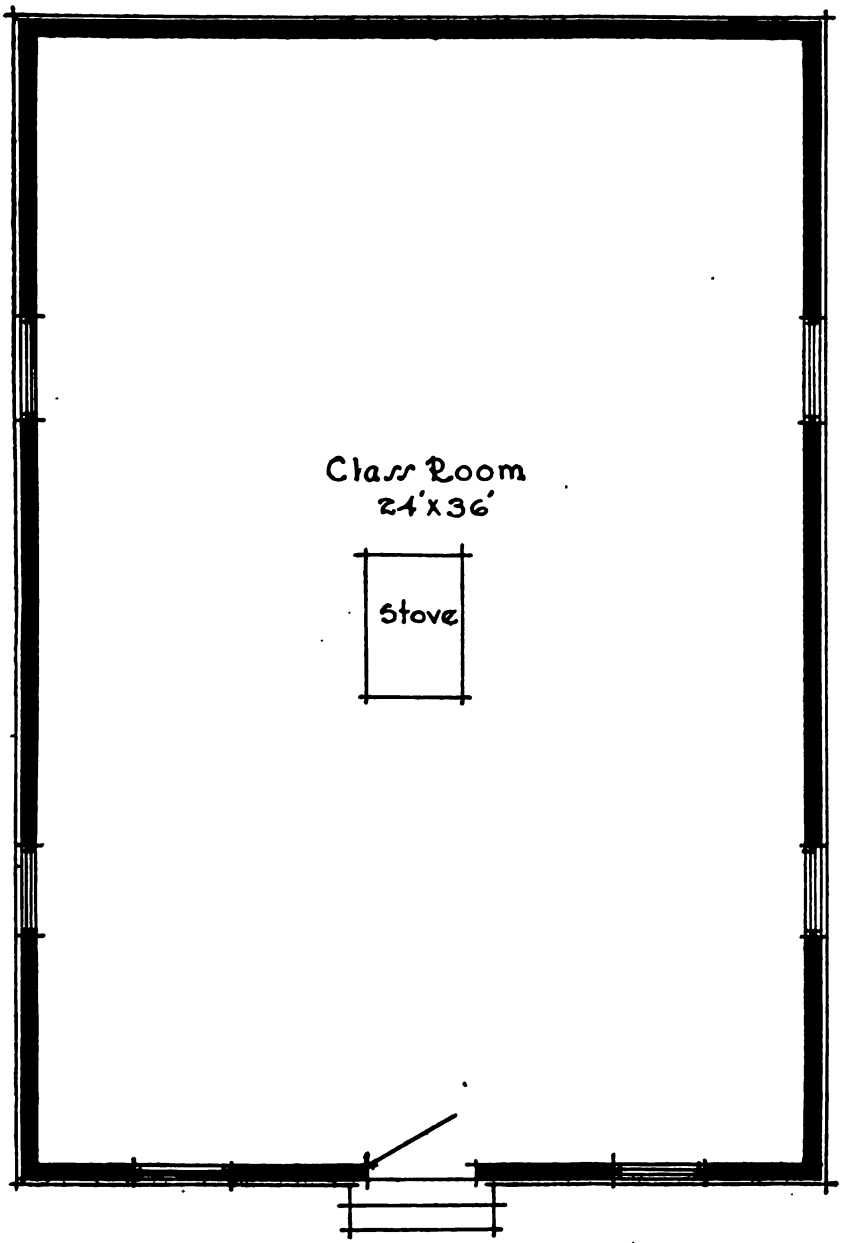

FIG. 14.—Floor plan of a typical old school building (see also p. 115).

Figures 15 and 16 show a building that is not a one-room building, but a one-teacher building.[1] It is really a five-room building. There

[1] Drawn by Hobart & Cheney, architects, San Francisco.

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is a splendid workroom, beautifully lighted, with provision for a small range for work in cookery. This workroom is 7 feet wide and approximately 21 feet long and will accommodate all the older boys and girls of the ordinary rural school. The uses to which this room can be put will be limited largely by the ability and foresight of the

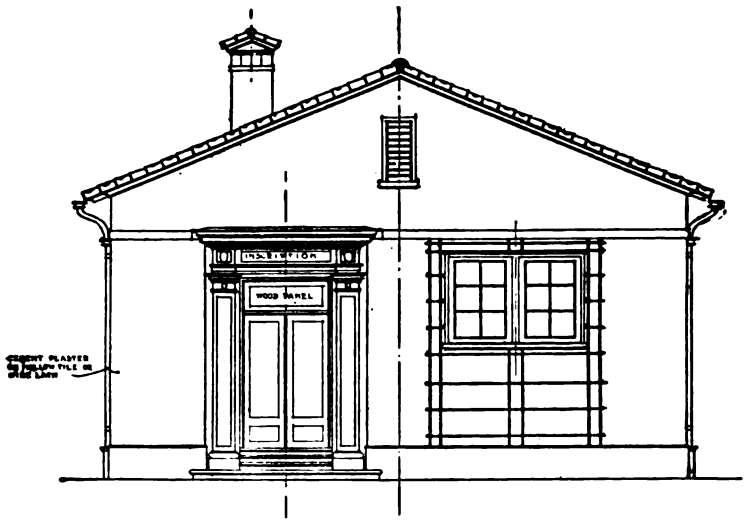

FIG. 15.—Front and side elevation, one-room school, Hobart & Cheney, Architects, San Francisco, Cal.

teacher in charge. Manual training in wood work, all sorts of drawing work; model making for farm barns, farmhouses, and outbuildings; studying germination of seeds and growth of plants; cooking; designing; cutting; sewing; and all other kinds of work relating to home life and school life may be done in this workroom if the teacher has vision and power to outline and direct the work.

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The library room should have more light than is here shown. There should be two windows instead of one. These placed (as indicated for the one shown) 6 feet above the floor will permit bookcases beneath and give good light and sunshine.

The two cloakrooms are well situated, and although some objection might be raised to the fact that the teacher's blackboard has

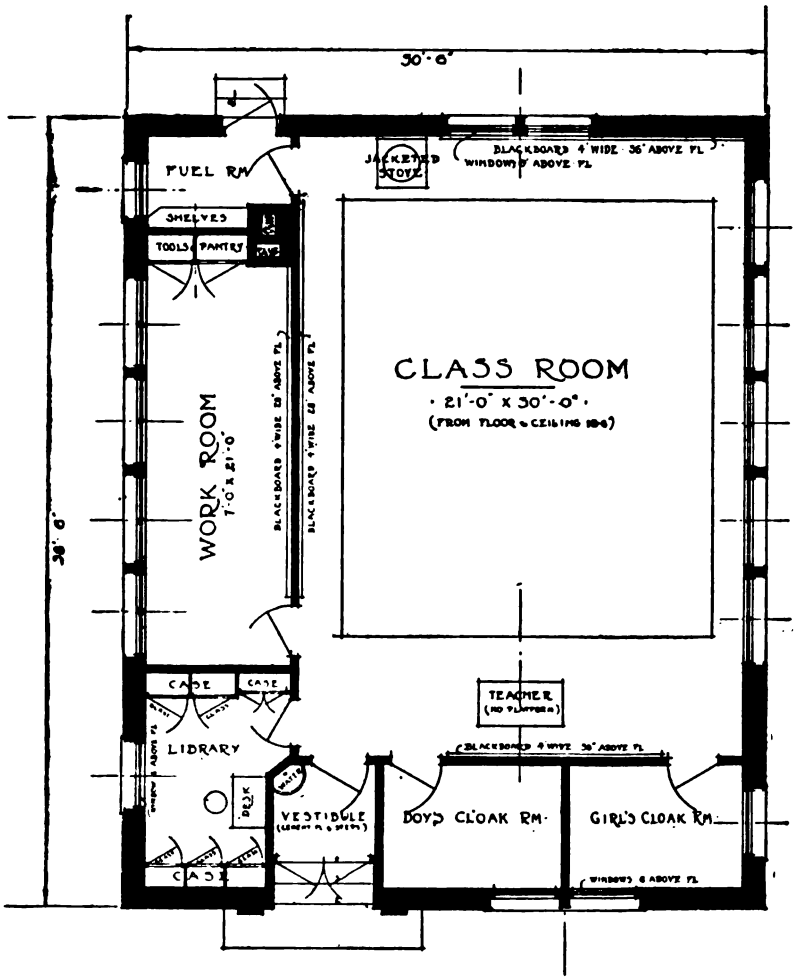

FIG. 16.—Floor plan of one-room school, Hobart & Cheney, Architects, San Francisco, Cal.

been shortened by the doors into these rooms, it is still long enough, especially if it is made 4 feet wide, as it should be.

The windows of the classroom are grouped on the left. Two high windows in the rear (8 feet above the floor) and those in workroom and library may be used to secure a breeze through the room in hot weather. The cloakrooms can be ventilated through their own windows.

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If a basement were properly constructed under this building and running water, with the necessary sewage disposal, were available, sanitary toilets and baths could be installed; a furnace also could be used instead of the jacketed stove suggested in this plan. If a furnace is installed, inlets should be set to heat the classroom, the workroom, and the library, which should open from the inner walls about 8 feet above the floor, and the outlets should be near-by at the floor line. The furnace would enable the small room shown in the drawing as fuel room to be thrown into the workroom; or better still, the partition and chimney could be moved farther to the front, and two workrooms, one for the boys and one for the girls, be made.

By studying these drawings it will be seen that the plans contemplate a construction with cement plaster either of fireproof tile or of framed and galvanized steel lath and a tile roof. But the form of this building lends itself to almost any kind of durable material.

The building will accommodate 35 to 40 pupils without crowding.

Should the hinged form of windows shown not be available in the local markets, the ordinary sliding sash can be used. The windows should be set 4 feet above the floor. When the upper parts of the windows are stationary, as here shown, ventilation is not so easily effected; when arranged as transoms, they are out of reach and generally useless. The hinged form of windows here called for will make it possible to turn this classroom into an open-air room by merely swinging all of the windows out. In larger buildings, where forced ventilation is used, the horizontal division of windows is less objectionable.

This plan can be easily adapted so as to make a splendid one-teacher rural school.

Plates 21, 22, 23 are reproductions of photographs of the Crossroads School in Macon County, Ill. The bureau is under obligation to State Supt. Francis G. Blair and the State printer of Illinois for the use of the photographs from which these cuts were made.

The building was designed by Mr. V. C. Zimmerman, of Chicago. It represents an unusually good type of country school and is worthy of careful study by school officers who can afford to construct a building of this size and equip it as indicated. Some features of this school deserve especial attention.

In the first place, from plate 21 and other views one can see that the windows are closely grouped and occupy almost the entire east side of the building. By reference to plate 23B it will be seen that the windows do not extend to the ceiling by about 2 feet. If the front one of these seven windows had been eliminated and the rest of the windows had been set higher from the floor, say 4 feet, and had extended within at least 1 foot of the ceiling, better lighting conditions would have prevailed, for the light then would have carried across the room better and have been better adjusted to

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the eyes of the pupils when seated at their desks If the windows had been set as thus suggested, ample glass surface would have been afforded, yet the disturbance due to the light from the front window shining directly into the eyes of some of the children as they attend to the teacher would have been largely eliminated. On the whole the lighting of this building is unusually good, but it would have been more satisfactory if the windows had been arranged as suggested. The narrow mullions between the windows are very commendable and the whole appearance of the elevation is pleasing.

Plate 22B, representing the interior, shows a good arrangement of the desks with one row close to the windows. This gives ample aisle space and serves to introduce without appreciable crowding six rows of desks. But if the lower part of the windows had been placed higher above the floor, there would have been less exposure to the cold on the part of the children who sit on the benches close to the windows.

Plate 23B shows small rear windows which can be used for ventilation in hot weather. They can be easily covered with a shade during the cold winter months when there will be no need for opening them. It is rather unfortunate that no blackboard appears on the side opposite the windows and that the blackboards are placed only in the rear and in the front. There are two spaces on the west side wall that could have been used very satisfactorily for board work by the pupils and that would have made it easier for all to see. However, these are minor points of no great significance. It is evident the blackboards are made of slate and well set. It may be suggested that the teacher's desk should be placed on the west side of the room instead of on the east, as indicated in figure 17. This would prevent those children sitting in the northwest part of the room from having to look toward the windows when attending to the teacher while seated at her desk.

It will be observed that transoms are placed above all the doors. Elsewhere it has been said that transoms in schoolhouses of this type, and for that matter in practically all types, are a delusion and a snare. They are rarely used, nearly always dirty, and generally out of order. In one of these photographs, however, it appears that two of the transoms are open, and the teacher in this school may be able to use them to some advantage.

The warm-air registers in the floor warm the pupils' feet and dry their clothes, but they also introduce a great deal of dirt and dust which falls into them, and after drying rises in the room to settle on furniture and on all ledges. It would have been better if these registers had been placed in the wall 8 feet above the floor, and if some special provision had been made in a convenient and out of

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the way place in the room for a fixed bench with a register opening in front for the purpose of warming the children's feet and drying their clothes.

The architect has introduced the usual tower. The building, however, would have been more beautiful if this tower had been left off, the roof would have been more secure from rain, and considerable expense would have been saved. Evidently this tower was built chiefly to accommodate the flagpole. It is better in all places where there is sufficient room, as there is at this building, to put a flagpole in the ground, and thereby make the flag much more

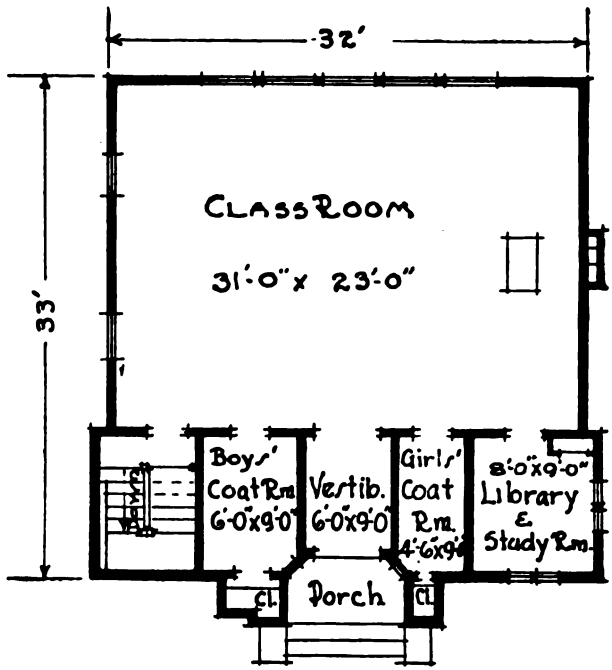

FIG. 17.—Floor plan, Crossroads School, Macon Co., Ill.

visible. The children can then practice flag drills and salute the flag with much greater intimacy than they can when it is far out of reach and more or less out of sight on the top of the building.

The basement and floor plans reproduced are worthy of study in connection with the photographs. The whole space under the building has been excavated and furnishes a furnace room, a coal room, a stairway to the basement, and a large well-lighted room for play and work. It is to be regretted that somewhere in this splendid building provision was not made for interior flush toilets and bathing facilities. The use of the basement for playroom and workshop is a splendid idea, but in the climate of Illinois outside

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toilets often necessitate the exposure of the children to inclement and cold weather in winter. The building deserves a septic-tank disposal and a pressure-tank water supply, which would have made possible flush toilets, drinking fountains, and shower baths. In the plan of the basement area spaces are introduced about the windows so as to allow larger windows, and thereby get more light into the basement rooms.

The floor plan of the building shows a cloakroom for the boys and one for the girls, a library, and a vestibule. Evidently when the building was constructed two more windows were added to the

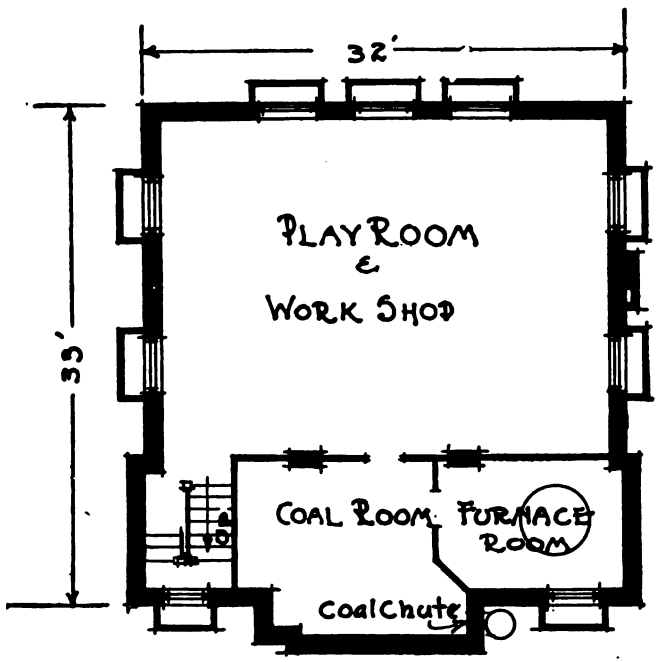

FIG. 18.—Basement plan, Crossroads School, Macon Co., Ill.

east side of the classroom than are shown in the floor plans. It is more than probable that if the five windows shown in the floor plan had been made higher and moved slightly to the rear better lighting would have resulted than now obtains.

The various suggestions herein made must be understood as suggestions, not as criticisms, for this building is unusually attractive and carefully planned, and is to be commended to all who are interested in the construction of a high type of country-school building.

Plate 24 represents an attractive one-teacher rural schoolhouse in district No. 9, Canandaigua, Ontario County, N. Y., and also

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the abandoned building which this new building displaced.[1] The floor plan, as will be seen (fig. 19), shows the classroom 24 feet long and 21 feet wide, large enough to accommodate about 25 or 30 pupils of such ages as attend country schools.

The orientation of the building is such as to secure effective lighting from the four windows facing the east. Two full-length windows are placed in the rear on the north. These would be valuable in hot weather, but for the purpose of lighting they are more troublesome than helpful. They must introduce some trying shadows to workers in the rear of the room, and will certainly make it very hard

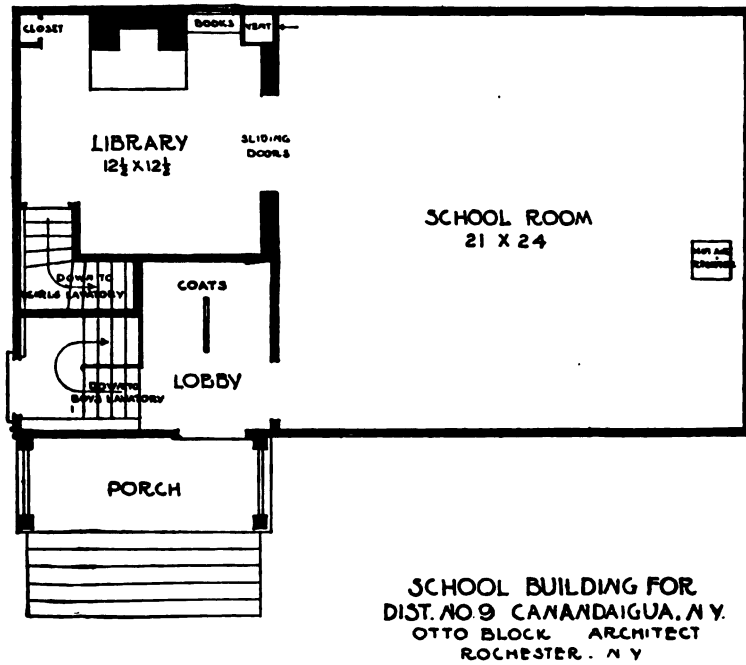

FIG. 19.—Floor plan of No. 9, Canandaigua, N. Y.

on the eyes of the teacher, who must face them whenever she is in the front of the room. It would have been better if these windows had been only half length, with the bottoms 8 feet above the floor. The children then would have been more carefully shielded in winter from the cold winds entering about the sash; the troublesome shadows would have been largely eliminated; opportunity for a breeze would still be afforded; and most certainly the teacher would have been relieved. In addition, blackboards could have been set on this wall under such windows, if additional blackboards should ever be needed.

[1] Used by courtesy of Miss Alice G. McCloskey, editor of the Cornell Rural School Leaflet (see vol. 4, No. 1, p. 175, September, 1912).

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The height of the lower sash above the floor and the proximity of the tops of the windows to the ceiling are not apparent, but the grouping of the lateral windows is good, and this small room can be well lighted from the four windows, if the shades are handled intelligently. The interior decoration of the room is tasteful, and the placing of the blackboards excellent. The color scheme used is as follows: The ceiling and the side walls as far down as the picture molding are cream color; the main part of the room is pale green; the library is terra cotta; the fireplace in the library is red pressed brick.

The library, with the sliding doors, fireplace, and furniture, is especially attractive and is, no doubt, the most alluring place in the building to the older pupils and the patrons of the school. The rather unique lobby, the stairways to the basement, and the simple attractive porch are all commendable.

In the drawing the hot-air register is apparently shown opening through the floor. In practice this might become decidedly objectionable. The dirt and dust from the floor would certainly enter such a register and be scattered through the room by the upward movement of the currents of warm air. The proper place for this register is in the central part of the wall between the library and the classroom. This position would not only prevent a great loss of heat through the use of a long duct in the basement (it is assumed that the one chimney serves both the fireplace and the heater), but would prevent the warmed fresh air from short-circuiting over the heads of the children and going directly out at the exit and the fireplace. This would certainly happen if the register is located as shown in the floor plan.

One excellent feature of this building is its simplicity. There are no towers or excrescences of any sort. A country carpenter can build it at a minimum expense for lumber and millwork.

The tasteful treatment of the garden is especially to be commended. There is a hedge of Lombardy poplars forming both a pleasing background and a windbreak on the west. In addition to these, there are 9 elms, 1 white pine, 8 Norway maples, 1 Norway spruce, 3 hemlocks, 1 English walnut, 24 dogwoods, 1 shrub of white honeysuckle, 24 shrubs of spirea, 24 Dorothy Perkins rosebushes, and 24 shrubs of barberry. These names are cited to show what can be done to beautify and instruct in nature work on a school lot of 1 acre.

The spirit that made the Canandaigua school possible is indicated in the following statement by Mr. Booth, the district superintendent:

My reason for the work in district No. 9, Canandaigua, was that the schoolhouse and its grounds were the most neglected places in the neighborhood. A beautiful lake-shore drive passing homes with all modern improvements, which were a pleasure to look on, presented in marked contrast the place in which boys and girls, the best assets from these homes, were receiving their education. The schoolhouse was built

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in 1819, the deed calling for no more ground than that on which the building was to stand. The outhouses were on land that belonged to the public highway.

At the time I took up the work, many of the school patrons felt that the wisest plan was to close the school and send the pupils to town. I do not believe in this method when it is possible to avoid it. I believe that children are better cared for near their homes than when they go to and from school in a carryall, with an indifferent driver and no supervision; remaining in town all day, where, in order to maintain order and a fair citizenship, we must have churches, Y. M. C. A.'s, and a police force.

Very often the reason for closing the rural school and sending children to town is because it is cheaper and the patrons are not willing to assume the duties of the school and dignify those duties by their interest and cooperation. In our district to-day I am happy to say that we are hearing little of the closing of rural schools.

One of the first things I did was to ask Mr. F. G. Benham, who owned the farm of which the school lot was a part, to give us an acre of land. This was at once granted on condition that I could carry out the plan of improvement. I then appealed to the citizens of the village who enjoy the lake drive for help in the enterprise, and received $300. A meeting of the taxpayers was next called, at which a resolution accepting the money and land was passed and a levy of $2,000 made. Then, with the united efforts of school commission and people, we accomplished the election of a trustee in sympathy with the work we were trying to perform.

With the gift of land and money, and $2,000 of the district money, we went to work. We had an engineer of good standing to lay out the grounds, and I think this was a most important step. We next engaged a good architect, who said at once that our plans could not be carried out with the amount of money we had. I told him that I was raised on a farm and never lifted a stone when I could roll one, and I believed we could do it. I proceeded, however, to get more interest and help. The workmen entered into the spirit of the thing, working hard and overtime and deducting a goodly amount from their bills. By the end of the year all was finished and paid for.

But this is not all. Later there was donated to the school a swing, which is a beginning in the interest of recreation apparatus for the boys and girls. We then remembered that we had a friend in the gas and oil business. I asked him if he would like to have the honor of presenting us with a steel flagpole. As a demonstration of his response, we now have a flag flying from a 40-foot steel pole set in concrete. There are many persons who like to do things if they have definite understanding of the need and value of their contributions.

We are now planning for an endowment fund, the interest of which will be used for the care and improvement of the school grounds, the district to look out for the building. The raising of an endowment fund is valuable for the community. It means looking ahead, a consideration of the future.

The following reproductions of photographs of the Silas Willard School, of Galesburg, Ill., are worthy of study by those who are considering consolidation and are seeking the best type of consolidated rural or village school. Some of the features in this school deserve special attention.

In the first place, the classrooms are provided with skylighting as well as with supplemental side lighting. By reference to plate 34, and their effect this type of lighting will be clearly seen. The question whether skylights such as these are necessary or even helpful in this type of school building can not be answered without making certain reservations. There are conditions, in smoky cities

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and in localities with much dark, cloudy weather, where skylights are helpful, particularly in one-story buildings. Generally speaking, however, if buildings are properly orientated and if the requisite amount of glass surface is correctly set in the walls, unilateral lighting is to be preferred for classrooms not over 24 feet wide to any combination of sky and lateral lighting.

There can be no doubt, however, that the windows shown in the rear of these classrooms could either have been left out to advantage or have been made half length and set at least 8 feet above the floor. They certainly are not needed for light, and if on warm days a breeze

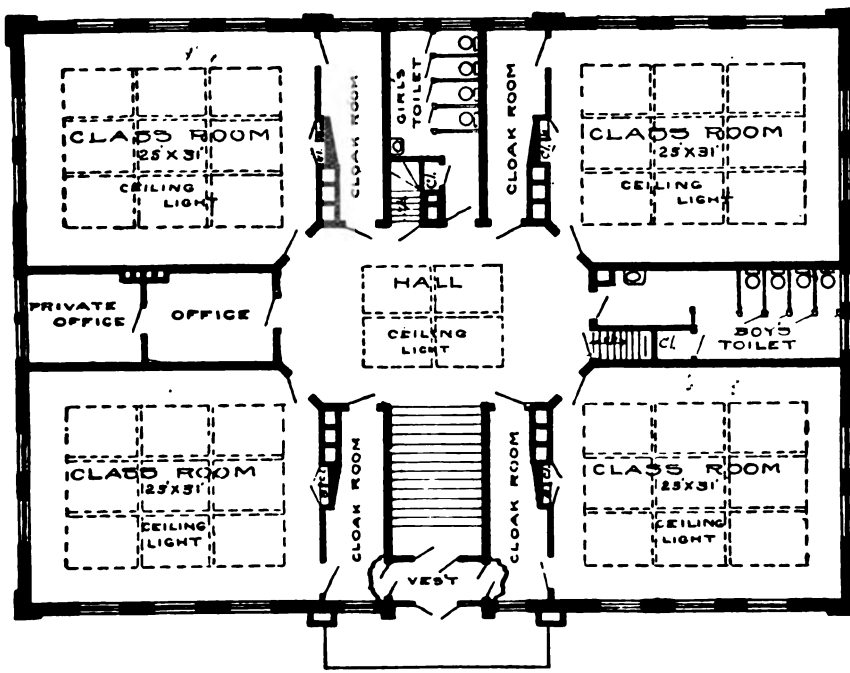

FIG. 20.—Main floor plan, Silas Willard School.

is desirable the small high windows would serve this purpose without exposing the teacher to the glare of these low windows.

These beautiful classrooms could be well lighted by setting in the walls to the left of the pupils one-fifth as much glass surface as there is floor space, provided the windows were set 4 feet above the floor and were extended to at least 6 inches from the ceiling, thus throwing the light well across the room. Close examination of the interior views will show that skylighting does not give as good illumination on the blackboard as on the desks and the floor. This is not a serious objection for classrooms designed for the upper grades, but it needs to be pointed out. It should be said that the light introduced by these skylights is diffused north light and is very soft.

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Another special feature of this excellent building is the well-lighted and commodious basement, designed to be used for assembly and for general community gatherings. It has a stage and an excellent floor for dancing, drills, gymnastic work, etc. A basement is not the best place for an assembly room, but often it is necessary, through ack of funds, to attempt to meet the demands for an assembly room in the next best way. This basement room, as will be observed, is not more than 3½ feet below the level of the ground; and as the building is situated on ground higher than the surrounding territory the room can be so underdrained as to render it dry and wholesome. The basement walls can be built of concrete and either finished to a

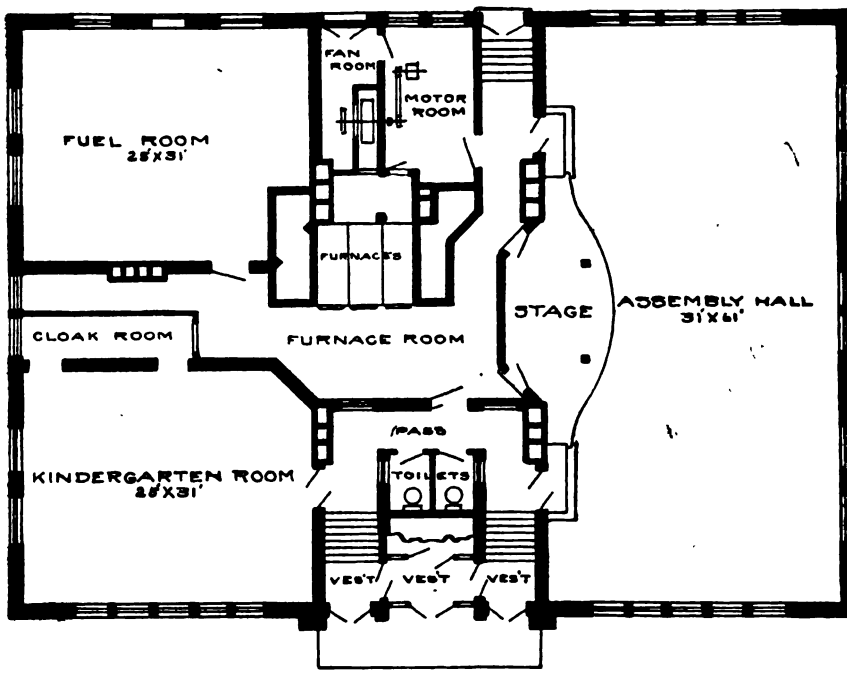

FIG. 21.—Basement plan, Silas Willard School.

smooth surface or faced with light glazed brick or tile. This would improve the illumination and make the room more sanitary.

The arrangement and treatment of the hall deserve a few words of explanation. By reference to Plate 35A it will be seen that all of the rooms open off this one central hall. The skylight gives the hall beautiful illumination without the use of any auxiliary outside windows. The only objection to this arrangement is that the toilets are rather too conspicuous. This objection could be readily obviated in future buildings of this type.

Workrooms and baths are supplied, and a central hot-air and fan system furnishes heat and ventilation. The transoms over the

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doors and the glass in the doors could have been left out to advantage and with economy.

Taken all in all, the building is excellent and beautifully simple in construction. It has been introduced for the consideration of those, as mentioned above, who are charged with the construction of small country high schools, consolidated country schools, or village elementary schools.

The interesting school building represented by the accompanying reproductions of photographs and floor plans[1] is in use at Cocoanut Grove, Fla. It is representative of a new type for the South and is worthy the study of all school people who are charged with building

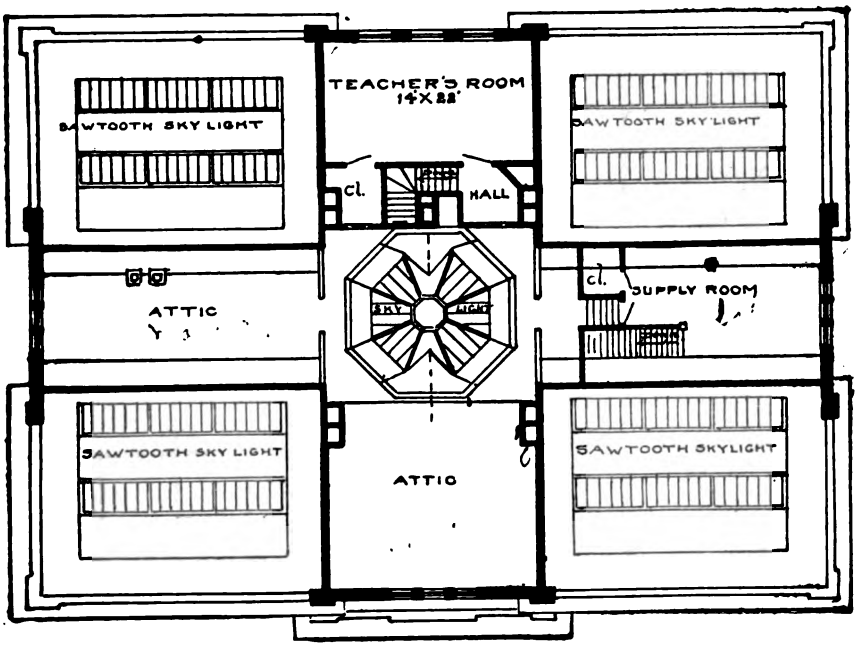

FIG. 22.—Attic and roof plan, Silas Willard School.

village schools, country high schools, or consolidated country schools. It is especially adapted to conditions where the population is increasing and where additions are anticipated, for additions can be added at a minimum of expense and with practically no disturbance to the original building. This is a desideratum of no small moment. For example, the country consolidated schools and the country high schools are still somewhat in the experimental stage, especially with reference to the number of pupils they will ultimately accommodate. This form of building permits additions to meet the needs and without doing any violence to the architectural ideal set forth in the first units. It thus warrants the use of permanent materials, such as concrete or stone, and, hence, in the long run will prove economical.

[1] Plate 12; figure 23.

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The one-story court and pergola form of structure eliminates the need for stairways and halls and reduces congestion and noise to a minimum. In warm climates where little or no artificial heat is

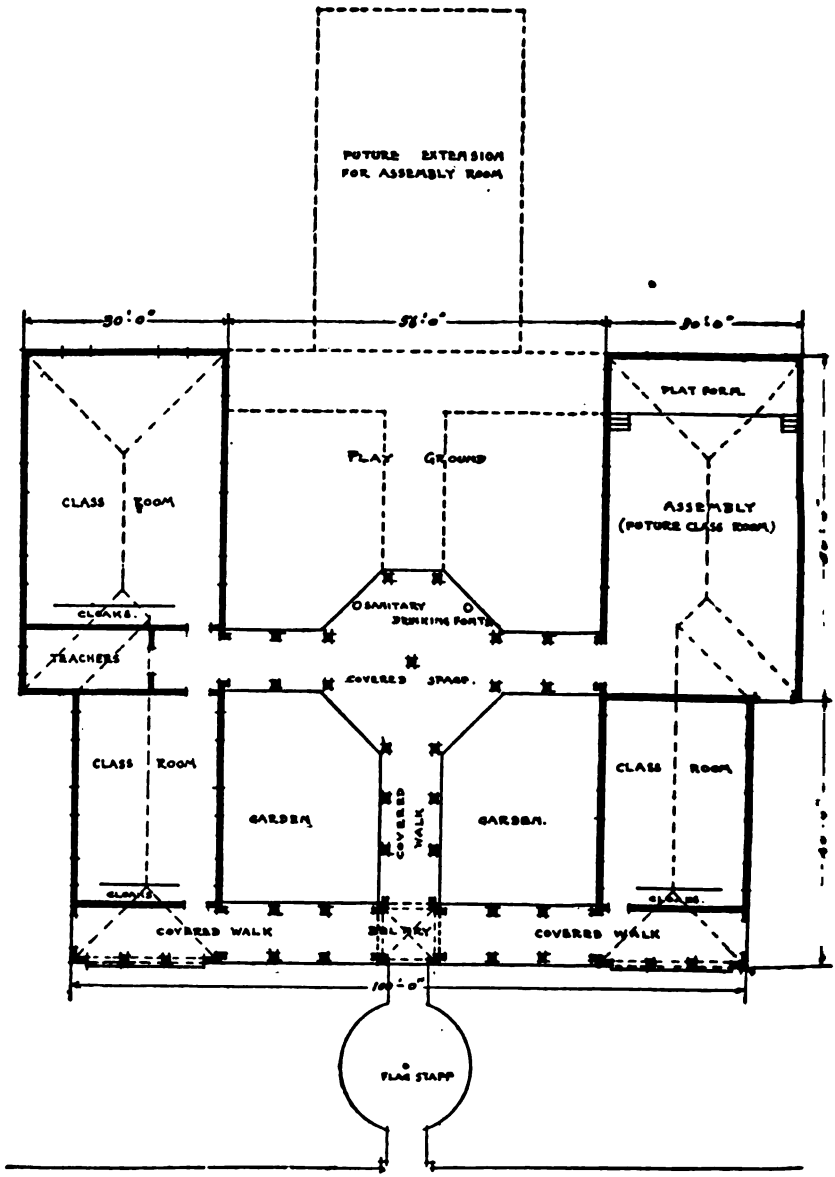

FIG. 23.—Floor plan, school at Cocoanut Grove, Fla.

needed, space and expense are saved by the elimination of basements for heating apparatus. If, however, heat is needed, it can be furnished by a central detached plant for the use of low-pressure steam

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or, if the climate is sufficiently mild in winter, fireplaces could be installed at small expense. When the windows and the system of heating are correctly arranged with due regard to the demands of ventilation, fresh air can be introduced by proper manipulation of the windows, and thus much annoyance and expense may be saved.

This brings up the matter of the location of the windows in this building, both as shown in the floor plans and in the photographs. It would have been very much better if the light had been admitted from one side only. If double the number of windows had been placed in one side, and breeze windows—that is, short windows set 8 feet above the floor—had been set on the other side of the classroom, the lighting would have been far more satisfactory and the ventilation more evenly distributed Unilateral lighting of classrooms is the only justifiable method (see chap. 6). The height above the floor of the lower part of the windows is 3½ feet. For the advanced classes 4 feet would have been better. The lower part of the windows should always be above the level of the eyes of the children when seated at their desks.

If the windows had been grouped on one side of the classrooms, as suggested, and even the same form of sash used as is shown, the classrooms of this building could be almost instantly turned into practically open-air rooms. If the sashes were made in one piece and either hinged at the top and opening in, so that they might be drawn up to the ceiling, leaving the window space entirely open, or possibly pivoted in the center, another advantage would have been gained. In fact some of the windows in this building are pivoted.[1]

On account of the immediate demand for a small assembly room, the classroom opposite has been made too wide for economical construction and classroom work. In low structures of this type the classrooms should never be over 24 feet wide, and preferably 22 feet if the number of pupils in each classroom does not exceed 30 or 35. Those who build after this model would do better to sacrifice the width of the temporary assembly room to the classroom than to expand the classroom for the sake of the temporary assembly room. The two smaller classrooms in front are approximately correct in size and proportion.

The cloakrooms should receive their ventilation and lighting immediately from the outside instead of from the classroom. This change could be easily made by simply extending the partition to the outer wall and opening a window. Doors to the cloakrooms could then be set in the most convenient places.

Aside from the foregoing suggestions, only praise and commendation are to be given to this building for its beauty and adaptability

[1] According to Mr. H. H. Bundy, the architect, to whom thanks are due for the photographs and drawings here reproduced.

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to country-school conditions. It suggests the open air, will blend well with almost any setting, is economical of material, easy of access, and wholly inviting. The courts and pergolas unify as well as beautify, and the spirit of it all is quiet, unassuming, and restful.

A final word of suggestion may not be amiss. It has to do with the "future" assembly room. Here is a splendid opportunity for an open-air theater. In Florida there are comparatively few days even in winter when, instead of using an inclosed room for assembly purposes, an open-air theater might not be used, especially for short periods of morning exercises and for general midday gatherings. Let us suppose, therefore, a moderate excavation made back of the court, a series of concrete amphitheater seats and a liberal stage

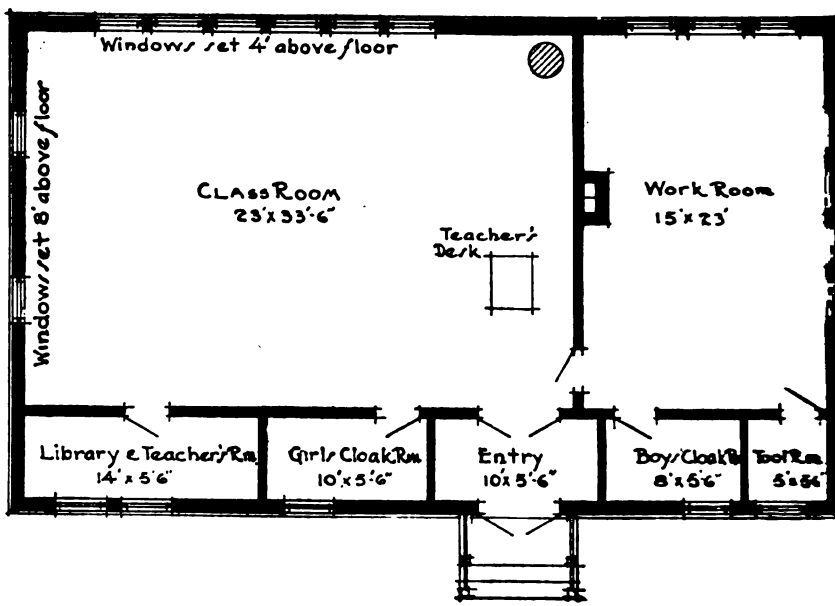

FIG. 24.—Plan of one-teacher rural school, designed by J. L. Sibley.

erected, and all protected from the wind by properly placed walls and from the rain by a roof designed to harmonize with the whole scheme. Such an assembly room would be far more useful and attractive than an inclosed building, however well it might be constructed. Of course this open-air assembly room would have to be adapted to meet local weather conditions. In the section of Florida where this school is located the heavy beating rains of the autumn season would make it difficult to keep the water out of the slight excavation that would be necessary. This might be overcome by drainage in most places or, where it is possible, by taking advantage of a natural slope without excavation. Many parts of the South and West would not have to make such decided efforts to guard against beating rainstorms as would the east coast of Florida.

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The one-teacher rural school described in the following specifications and illustrated by figures 5, 8, and 24, is from plans drawn by Mr. J. L. Sibley, one of the rural-school supervisors of Alabama. It is designed to accommodate 40 to 45 pupils, and, as will be seen, has a workroom, a tool room, two cloakrooms, and a library in addition to the classroom. The dimensions of each room are shown on the floor plan. The height of the ceiling is to be 12 feet between ceiling joists and floor joists, making the distance between finished floor and finished ceiling approximately 11 feet 8 inches. Other dimensions will appear in the specifications.

SPECIFICATIONS FOR ONE-TEACHER RURAL SCHOOL.

The building is to be 18 inches above ground. The corner pillars to be 8 by 32 inches; other pillars to be 8 by 16 inches. Sills to be 4 by 8 inches. One sill to pass through center of the building and be supported by 8 by 16 inch pillar. Joists to be 2 by 10 inches, set 20 inches O. C. Studs to be 2 by 4 inches, set 24 inches O. C. Ceiling joists to be 2 by 6 inches, set 24 inches O. C. Ceiling joists over teacher's library, vestibule, cloakrooms, and tool room to be 2 by 4 inches, set 24 inches O. C. Rafters to be 2 by 4 inches, set 24 inches O. C., and well braced by a tie across from rafter to rafter—this tie to be placed about half way of each rafter. Building to be 12 feet between ceiling joists and floor joists. Blackboards to be 4 feet wide, 30 inches from the floor, and to run around three sides of the room where there are no openings.

If no weights are to be used on windows, the window frames are to be made so that the top sash can be let down 12 inches from the top by means of a hinged strip, which forms a part of the blind stop, and is the width and thickness of sash.

The following bill of lumber and other material is required:

Lumber:

9 pieces, 4 by 8 inches by 18 feet—Sills.
4 pieces, 4 by 8 inches by 16 feet—Sills.
62 pieces, 2 by 10 inches by 16 feet—Floor joists.
26 pieces, 2 by 6 inches by 24 feet—Ceiling joists set 24 inches O. C.
13 pieces, 2 by 4 inches by 14 feet—Ceiling joists set 24 inches O. C.
24 pieces, 2 by 4 inches by 20 feet—Rafters.
8 pieces, 2 by 4 inches by 20 feet—Cripples.
8 pieces, 2 by 4 inches by 16 feet—Cripples.
12 pieces, 2 by 4 inches by 14 feet—Cripples.
8 pieces, 2 by 4 inches by 12 feet—Cripples.
10 pieces, 2 by 4 inches by 10 feet—Cripples.
8 pieces 2 by 4 inches by 14 feet—Hipps—spliced.
33 pieces 1 by 6 inches by 20 feet—Ridge saddle and roof braces.
30 pieces 2 by 4 inches by 16 feet—Plates.
100 pieces 2 by 4 inches by 12 feet—Studding.
41 pieces 4 by 4 inches by 12 feet—Studding posts.
18 M No. 2 shingles.
1,200 square feet sheathing.
2,000 square feet No. 2 flooring.
2,850 square feet weatherboarding, $\frac{5}{8}$ by 6 inches.
6,850 square feet ceiling required (approximately); for each room divide as follows: Classroom, 2,685 square feet; workroom, 1,485 square feet; vestibule and teacher's library, 1,415 square feet; cloakrooms and tool room, 1,100 square feet.

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Lumber—Continued.

3 pieces 1½ by 12 inches by 10 feet—Treads.

3 pieces 1 by 7 inches by 10 feet—Risers.

1 piece 2 by 12 inches by 14 feet—Stringers.

Windows:

18 windows 10 by 18 inches—12 lights and frame complete.

2 single sash 10 by 18 inches—12 lights and frame complete.

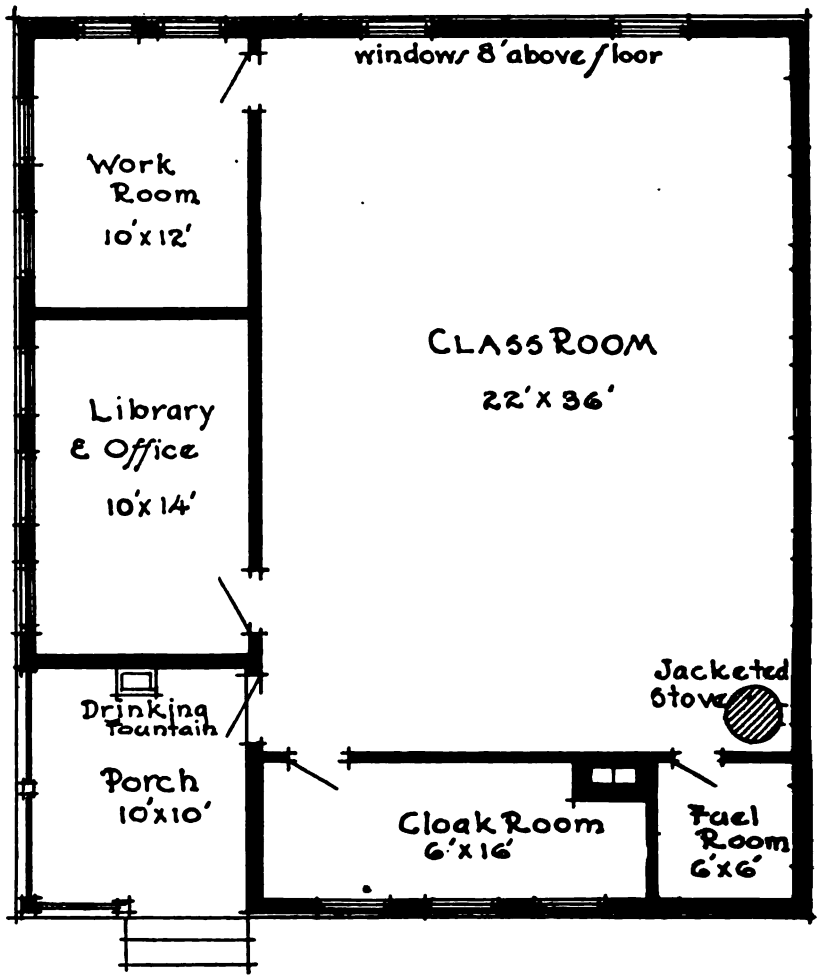

FIG. 25.—Floor plan for one-teacher rural school of minimum cost.

Doors:

1 door 3 by 7 feet by 1¾ inches—No. 2 and frame complete.

4 doors 2 feet 8 inches by 6 feet 8 inches by 1¾ inches—No. 2 and frame complete.

1 double door 5 by 7 feet by 1¾ inches—No. 2 and frame complete.

900 feet of quarter round.

Two 6-inch T. C. thimbles.

Bricks and lime: 1,100 for chimney; 540 for pillars; 1,200 underpinning; 4 barrels lime.

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Nails: One keg 20d.; 1½ kegs 8d.; 2 kegs 6d.; 60 pounds shingle; 20 pounds finishing.
Locks: 6 rim locks; 1 front-door lock.
Hinges: 7 pairs hinges, 3½ by 3½ inches, loose pin; 3 pairs hinges, for single sash.
Transom lifts: 3 transom lifts—1 for each single sash.
Paint for house—outside and inside door frames: 100 pounds white lead, 10 gallons linseed oil, 2 pounds lampblack.
Classroom: Walls, 4 packages kalsomine—light buff; ceiling, 2 packages kalsomine—cream.

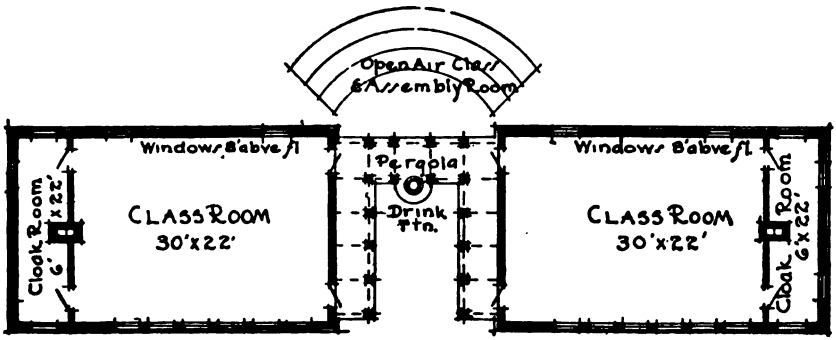

FIG. 26.—Two-teacher rural school; connected by pergola.

Workroom: Walls, 1½ packages kalsomine—light buff; ceiling, 1 package kalsomine—cream.
Teachers' library, cloakroom, and vestibule: Walls, 3 packages kalsomine—light buff; ceiling, 1 package kalsomine—cream.

Figure 25 represents a drawing for a floor plan of a one-teacher rural school reduced almost to the limit of inexpensiveness. It contains a classroom, a fuel room, a workroom, a library and office room, and a cloakroom. The representation for this building should include an uncovered porch and a low, flat roof, with wide eaves.

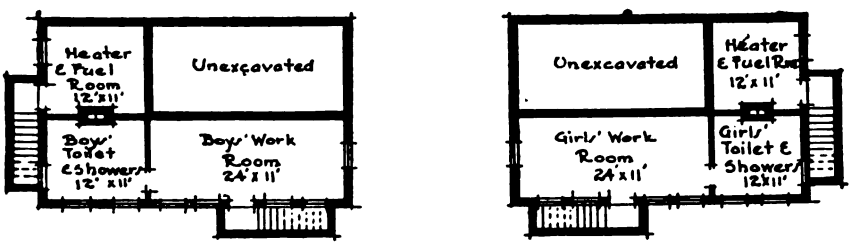

FIG. 27.—Basement plan of two-teacher rural school.

This plan in the hands of an artistic architect would suggest an attractive building and satisfy a community yet unable to supply more than its actual needs.

Figures 26 and 27 represent drawings for floor plan and basement of a two-teacher rural school. As will be seen, these are separate buildings, connected by pergolas or a court. These pergolas can be constructed of rough timber and covered with vines. The court can be

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used as a flower garden or grass plat, as seems most suitable. In the center of the cross pergola a drinking fountain is suggested, with a wall about 5 feet high between it and the platform for the open-air assembly room. This arrangement would give privacy to the open-air

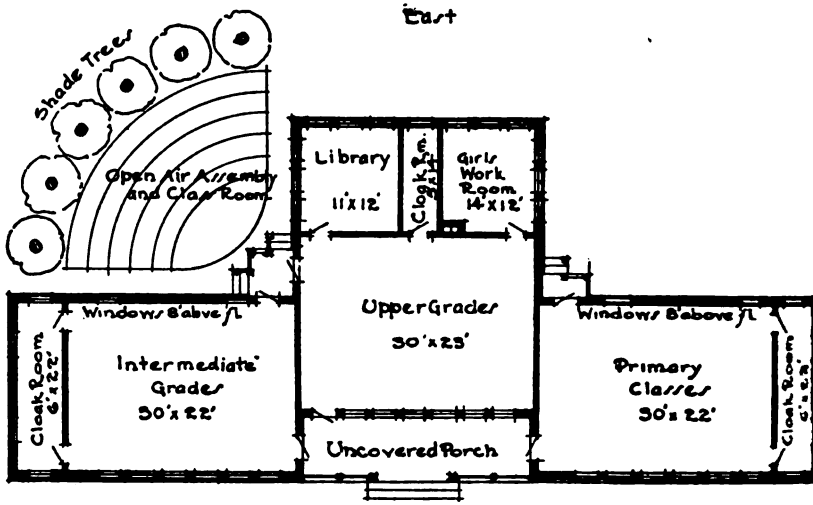

FIG. 28.—Floor plan, three-teacher consolidated rural school with open-air assembly and class room.

assembly room and would furnish a background for a small stage under the pergola. The posts for these pergolas should be at least 8 feet above the ground and may be set at such distance as the

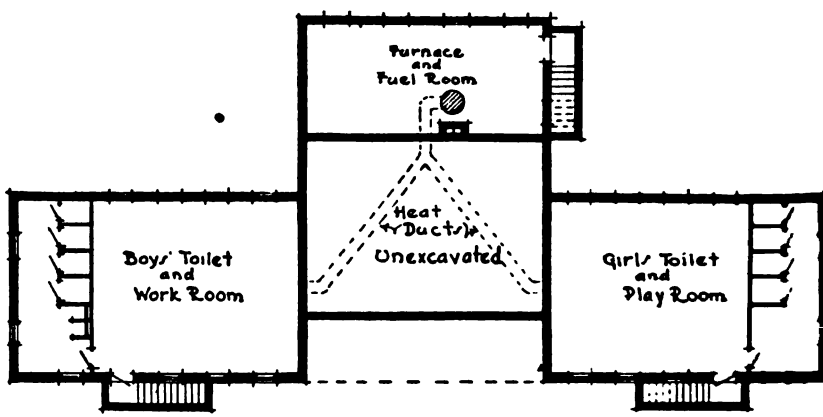

FIG. 29.—Basement plan of three-teacher building shown in Fig. 28.

builder sees fit. The side pergola should be about 6 feet wide and the cross pergola about 10 feet.

The basement is designed to supply a workroom for the boys and one for the girls, with toilets and separate heater in each. The unexcavated area is indicated. These basement rooms should be

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well drained and well lighted. The entrance to these toilet rooms should be through the workrooms, thus insuring privacy and preventing additional expense in the way of steps. The entrances to the furnace and fuel rooms are indicated in the drawing.

It would be economical and satisfactory in this building to use a low roof with comparatively wide eaves. No towers or belfries are permissible.

Figures 28 and 29 are floor plans and basement plans designed for a three-teacher consolidated rural school with a suggestion for an

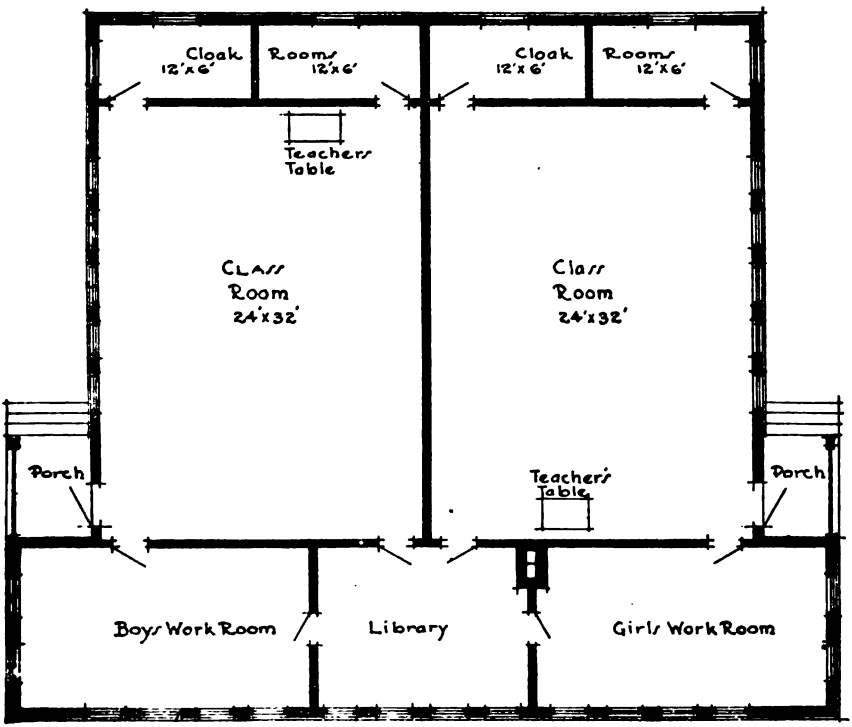

FIG. 30.—Two-teacher rural school.

open-air assembly and classroom. In addition to the cloakrooms opening off each classroom, the floor plan shows a library and a girls' workroom. The basement plan represents a fuel and furnace room and an unexcavated area, boys' toilet and workrooms, and girls' toilet and playroom. The ducts for heating the rooms can be carried under the floor of the central room, or, if a steam or hot-water system is used, pipes can be managed in the same way, thus giving opportunity for a central heating plant for all the rooms. The flue can be made double, to serve both for the furnace and for a range in the girls' workroom. The steps to the basement rooms are indicated on the front of the building and, except in cold climates, need

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not be covered if proper drainage is insured. The door to the fuel and furnace room is indicated on the south side. It may be placed at any other point if more convenient. The front porch is to be left open, and the floor should be made of cement, so that it can be cleaned most easily.

If the ground upon which the building is set slopes west, it will be comparatively easy to carry out the suggestions for the open-air assembly room. Naturally the topography of the school lot will determine the best position for the open-air theater. This schoolhouse should be constructed with a comparatively flat roof and

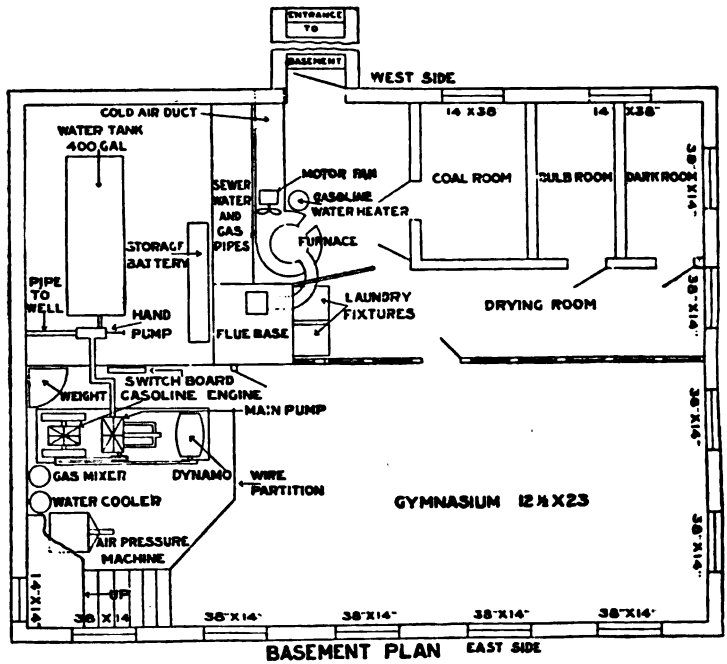

FIG. 31.—Basement plan, model rural school, Kirksville, Mo.

rather wide eaves, and with a little skill on the part of the architect could be made a very beautiful and inexpensive building.

Figure 30 represents the floor plan for a two-teacher rural school building. This plan is designed with two workrooms, a library, separate cloakrooms for the boys and girls of each room, two full-sized classrooms, and two porches. These porches should have cement floors dropped 2 or 3 inches below the entrance to the classrooms. The arrangement of the rooms with reference to each other can be easily made out from the floor plans.

The basement has outer entrances which may be covered with roofs joining to the main structure. The toilets and the bath-

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rooms are ample and can be well lighted by using nontransparent, but roughened, translucent glass. This will make them private and at the same time give an abundance of light, especially if area ways are excavated. The furnace and fuel room can be lighted in the same way, or transparent glass can be used in this room. The entrance to the furnace and fuel room is made through the boys' toilet and bath, and in this way expense can be reduced and satisfactory results obtained. As planned, only a part of the area beneath the building is to be excavated. The wall, however, separating the area beneath the workrooms and the library should be solid and without communication to the area beneath the classrooms. The ceilings could be so treated as to prevent the escape of any possible

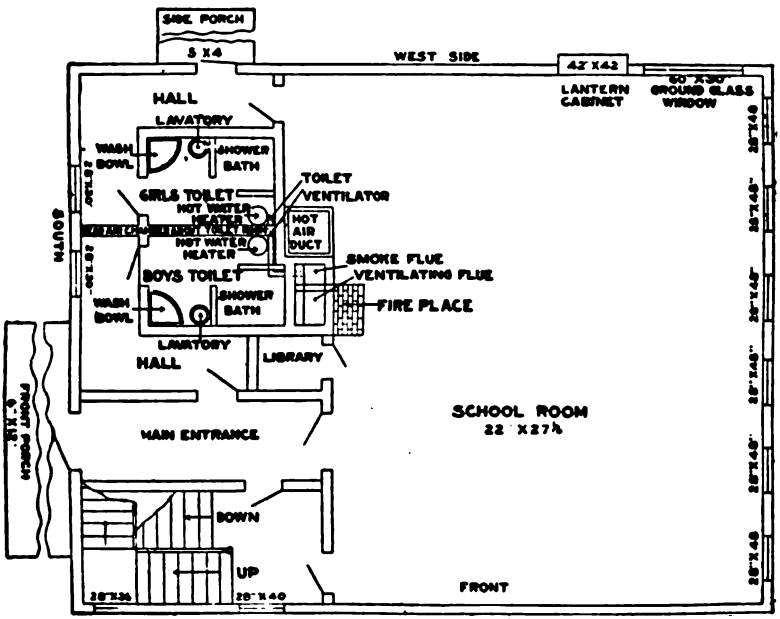

FIG. 32.—First floor plan, model rural school, Kirksville, Mo.

odors from the basement rooms to the rooms above. The toilets and the bathrooms should have cement floors, and a tile drain should surround the building, to prevent any possible seepage into these rooms. Naturally if running water is not furnished either by pressure tank or some other water supply, toilets and baths could not be introduced, and the rooms for them could then be used as workrooms.

If a hot-air furnace is used, the register should be brought up on the inner walls to a point about 8 feet above the floor, and the exits should be at the floor on the same side in order to secure a good

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circulation of air. The library and the cloakrooms can be heated and ventilated in the same way. If hot water or steam is used, it would be well to put the radiators on the window side of the classroom in order to insure the best circulation in cold weather and to prevent draughts. The use of window boards with steam or hot-water heating will make it possible to get more ventilation and to insure fairly equable heat throughout the rooms. The radiators in the library and the other rooms can be located to suit conditions.

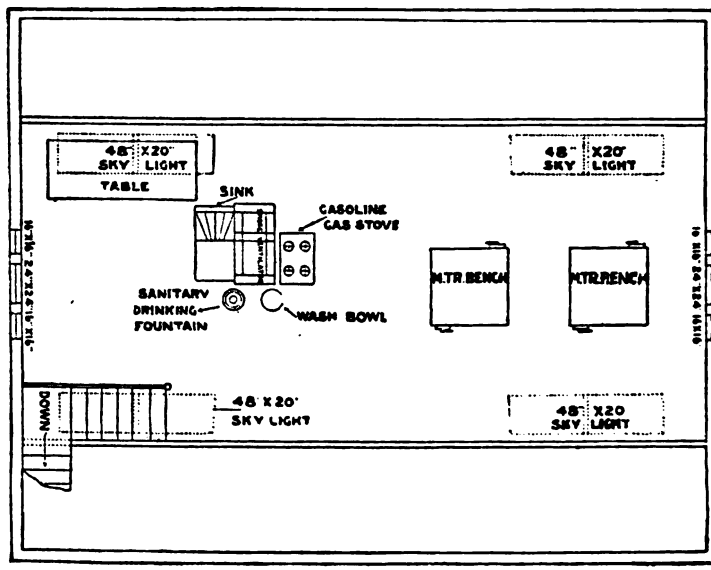

FIG. 33.—Attic plan, model rural school, Kirksville, Mo.

No breeze windows have been introduced into the ends of the classroom, because the door to the library can be left open in warm weather, thus securing a breeze through the library as well as through the doors opening to the porches.

Figures 31, 32, and 33 show the basement, first floor, and attic plans of the model rural school at the Kirksville State Normal School, Kirksville, Mo. Plate 20B shows the machinery located in the basement, by which city conveniences are made possible in a rural school.

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Chapter VIII.

REMODELING COUNTRY SCHOOLHOUSES.

If the reader will picture to himself an old building with two or three small windows on each side, a door in the gable end, a high-pitched roof, surmounted by some make-believe belfry or tower, and a small chimney emerging at the comb of the roof near the center of the building, he will have before him the exterior outline of the prevailing type of a rural schoolhouse. These buildings are usually of wood and rest on brick pillars, with more or less open space between the floor and the ground, so that the wind sweeps through without hindrance. The building is generally unpainted, or, perhaps, was once painted. Many of the boards on the side are disconnected, showing the ribs of the structure underneath.

Within the building we shall probably find a box stove in the center, rusty and dirty, possibly hoisted on halves of bricks, or, if a little more caution has been exercised, standing in a box filled with sand, into which the legs of the stove extend. A rusty pipe runs straight up through the ceiling into the central flue. Double benches, ranged on either side of the stove, face toward the back of the room, where a teacher's desk surmounts a useless and troublesome platform. The floors are single, made of rough boards, and the cracks are more or less stopped up with dirt. There is no cloakroom in the rear; hats and wraps are piled up on old benches or hung on nails driven into the wall. Somewhere in this part of the room a dirty water bucket, with its accompanying long-handled, rusty dipper, contains the visible supply of drinking water. It is needless to describe the walls, the appearance of the windows, the kind of blackboards, the condition of the desks. Those who know country schools can fill out this picture in its minutest detail.

Suppose this building is in a fair state of repair; that is, too good to give up and too bad to teach school in. What can be done to make it more beautiful and more inspiring as a place for teacher and pupils? This is a practical question, and should be dealt with in a practical manner. Figure 14 represents the floor plan of an actual building, such as described. Suppose we make a study of this plan and see what could be done in the way of reconstructing or remodeling the building. The first thing to do would be to double the number

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of windows on the left side as you enter the door, and, if need be, enlarge them until the floor space to be used as a classroom shall not

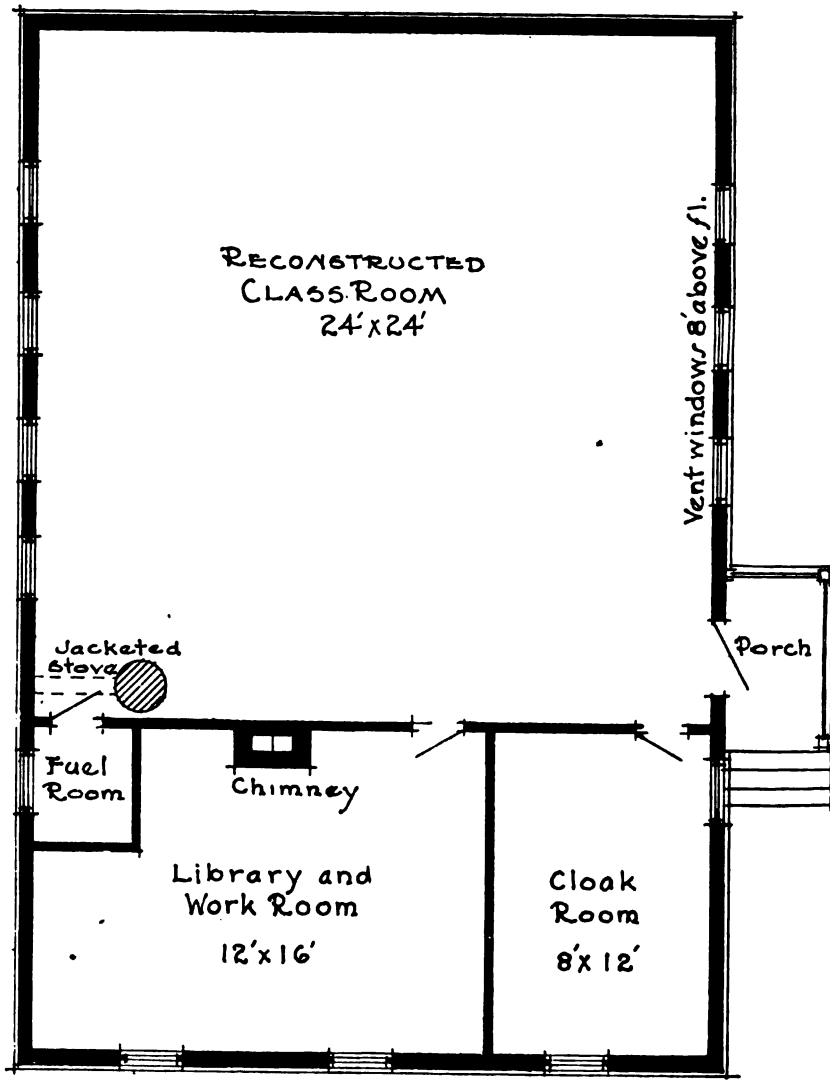

FIG. 34.—Reconstructed floor plan for an old building (based on fig. 14, p. 91).

be greater than five times the area of all the glass in the windows. This is a practical preliminary step to assure economical proportions of light and space, with due regard to hygienic requirements. In all probability this floor plan, which is 36 feet long and 24 feet wide, represents one-third more space than would be needed for a class-

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room, if the seats were properly arranged, the stove better placed, and the lighting well adjusted.

In the second place, it will be necessary to study the school population of the district to discover how many children of school age really reside in that district and how many are likely to attend school. Suppose the average attendance for the last three or four years has not been greater than 25, which number represents the attendance in a large majority of the district schools. For this number of pupils the room is needlessly large; hence we ought to reduce it, not by sawing the building in two, but by erecting a partition and utilizing the rest of the floor space for other purposes. If, on the basis of 25 pupils, each pupil is allowed 20 square feet of floor surface—a liberal estimate—then 500 square feet would represent the floor surface of the schoolroom needed for class purposes. The room is 24 feet in width; hence a length of 22 feet would yield 500 square feet and some space to spare. Suppose for good measure and for possible increase in the number of pupils during the winter time the room be made 24 feet square. These dimensions would give enough floor space for approximately 29 pupils, and would still leave a space 12 feet wide and 24 feet long at the rear of the room which, if partitioned off, would make the classroom much more attractive and usable as a schoolroom. The partition would cut off the door, and an entrance would have to be made elsewhere. Probably the best place for it is that shown in in figure 35, for the small porch needed will be inexpensive and the door will be convenient both to and from the classroom. The remaining long window on this side of the classroom could be removed to the other side, and two or three small windows for ventilation could be set 8 feet above the floor. Three ventilators, probably two, would be ample in most climates. In order to get sufficient light, two more windows should be added and set, as indicated, in the left wall. The space occupied by the old door can be readily adapted for an extra window.

Out of the space thus cut off a cloakroom 8 by 12 feet should be made, as shown, and also a small fuel room. The doors should be set as indicated. There still remains a good-sized room to be utilized as a library or as a general workroom.

If it be deemed better to use this space for a library, then the following suggestions may be worth while: The first need is a teacher with some vision and enthusiasm to build up in the district school a school and community library; then some cooperation from the county superintendent or the county board of education, some help from the State superintendent's office, some help from the women's library associations or clubs, a little aid from all in the community willing to lend a book, give a book, or donate sufficient money to buy a book; and the library work begins. A teacher who would undertake this work

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would doubtless have some taste. She would want to make this room the most beautiful in the building and would devise ways and means for cleaning and preparing the floor and for obtaining a few tasteful rugs, some inexpensive but beautiful pictures, a reading table, and some chairs. As a result, instead of the disagreeable and desolate appearance of the old schoolroom, there would be an attraction—a

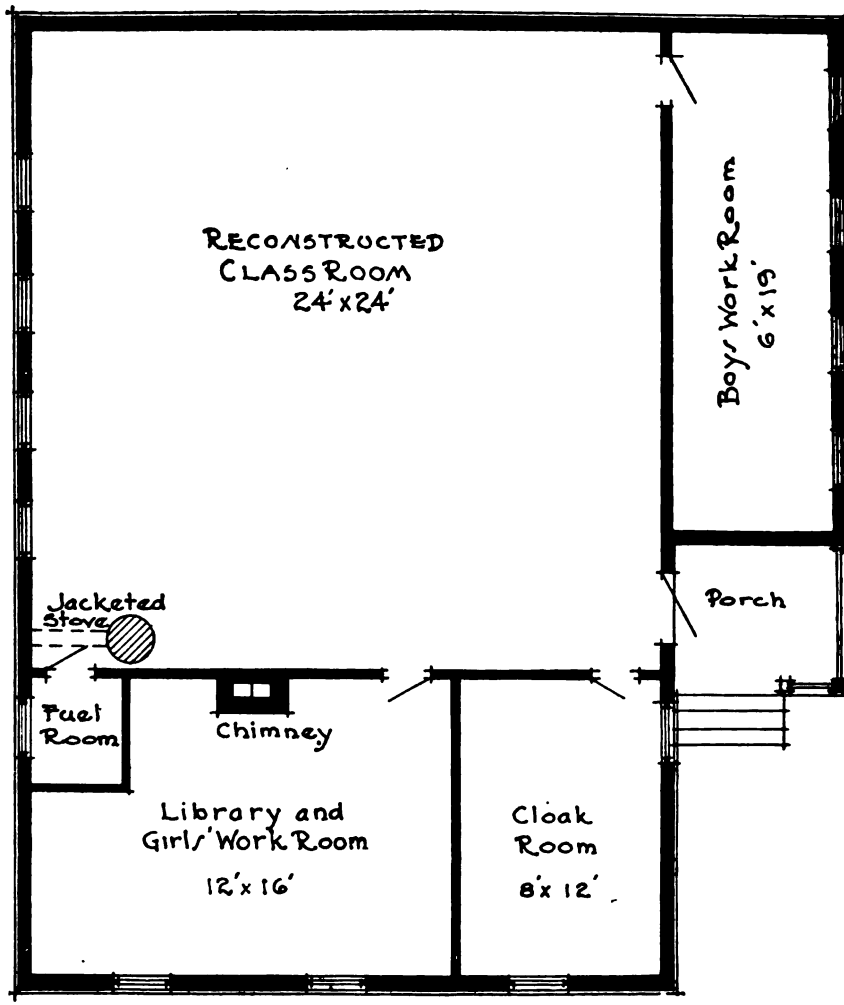

FIG. 35.—Same plan as figure 34 with better division of floor space.

room with books, with magazines; a place for the people of the neighborhood to come, even during school time, to read and borrow books; consequent opportunities for more sympathetic contact with the school situation.

"How much would this reconstruction cost?" This question can not be answered with any exactness, because of different labor condi-

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tions in different parts of the country; but surely changing one door, removing one window from one side of the room to the other, adding three large windows, adding two or three small windows and two doors, changing the location of the flue, and replacing the stove could be done at a comparatively small expense. The relocation and grouping of the benches would cost nothing, and the material equipment of the library could grow as conditions permit. The cost of the partition walls and of the new porch would augment somewhat the sum of these expenses.

Of course a regular jacketed stove should replace the old box stove as soon as possible, or the old stove should be surrounded with a sheet of galvanized iron, set 6 or 8 inches above the floor and extending about 8 or 10 inches above the top of the stove. This shield should encircle the stove on all sides save that in which the door is situated, and it need not be over 8 inches distant from the stove at any point. With this arrangement pupils can sit near the stove without being overheated, and the circulation thus set up will enable the whole room to be more equably heated than before.

Imagine if you can, the different spirit that would come over a pupil, say, of the seventh or eighth grade, who was permitted to spend part of his day at work in the library instead of being required to remain in the classroom, listening to the droning lessons of the younger pupils and being distracted in many ways.

This is only one of many methods of remodeling this sort of a district schoolhouse. We might take the same floor plan again and by going to a little greater expense extend the entrance porch and build a workroom 8 or 10 feet wide off it. If this addition were properly proportioned, it would not greatly disfigure the building, for starting with a bad form, we must look primarily toward added usefulness. The expense of making this addition would of course be greater, but it would make a more complete country school. In the workroom thus proposed all of those things pertaining especially to the home life of the children could be undertaken and the curriculum could thus be greatly enriched.

Old buildings are not the only ones which need remodeling. Suppose, as an example of what might be done in increasing the usefulness of a new building, we take the new and in many ways excellent rural school building now in use in West Virginia, represented in plate 15B, which shows its general outside appearance and location. Very slight excavation and the placing of windows and doors in the basement walls would have sufficed to make it possible to introduce a furnace, a fair-sized workroom, toilets, and baths under this building, one side of which is high above the sloping ground of a steep hillside.

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If the money spent on the tower had been used in developing the basement, probably there would have been little need of adding to that sum to make the basement entirely suitable for the purpose indicated. In addition to its usual uselessness, this tower is bound to interfere with the chimney draft when the wind blows from the direction of the cupola. A steep roof is not needed on this building, even though it may be in a snowy country; for it is not difficult on a small building of this sort to construct a roof that would withstand all of the weight of ordinary snows.

In the main, the lines of this building are good. The building, as it stands, suggests a tasteful and sanitary interior, in which cloakrooms are furnished, a jacketed stove is employed, and at least some semblance to a library is provided. But note the school ground, the outhouse, the coal piled up in the yard. Telegraph wires are visible, and in all probability a noisy railway is near. What is needed here, in addition to carrying out the suggestions made with reference to utilizing the space beneath the building, is more ground and also more public spirit to keep the garden in good shape and to plant trees. Country school buildings frequently furnish architects a better opportunity for artistic treatment than a large school building in the midst of a great city; for the country environment is frequently more suggestive and inspiring than that possible in most cities. This building would have been much more attractive if the roof had been comparatively flat and if the color of the exterior of the building had been made to blend with the hillside above it.

What can be done in reconstructing an old rural school is illustrated in the series of photographs of the Porter School, near Kirksville, Mo. (Pls. 29 to 32, inclusive.) [1]

Until September 3, 1912, Porter schoolhouse was in a condition of neglect, all too common in rural communities in the United States. The house rested practically on the ground, without foundation. A few of the shutters were still on; tramps had taken the rest for fuel. The chimney flue was at the east end of the building. There was a porch; and the door would not stay shut. Plate 29B shows one of the toilets. Comment on this outbuilding is superfluous. The tramps had used the door for fuel, and as a consequence the outbuilding had been turned into a boys' toilet. For lack of means no change has been made in this building beyond supplying door, lock and key, and a thorough scrubbing. The toilet is locked and unlocked daily.

Plate 29A represents the Porter School to-day. The photograph was taken from the northwest part of the yard and shows the following improvements looking to the health and comfort of the children

[1] Data and illustrations furnished by Mrs. M. T. Harvey, the teacher under whose guidance the work was done.

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(*a*) A foundation of cement blocks.

(*b*) A temporary porch, steps, and walk, and a shoe scraper so designed that the smaller pupils may support themselves while cleaning their shoes. This device was planned to minimize the dust problem, for mud and dust are plentiful here.

(*c*) Door and window screens, the first, so far as known, in a similar school in Missouri.

(*d*) Spouting or guttering to carry the roof water from the building and insure a dry basement, which is well protected by a tile drain below and outside the foundation.

(*e*) This view does not show provision for fresh-air supply, but this has been introduced.

Plate 32B represents a view in the basement after reconstruction. A good hot-air furnace, with water attachment, has taken the place of the old stove in the middle of the room. A concrete floor keeps the basement dry and sanitary.

Plate 32A represents another view in the basement showing a pressure water tank and its connections with washbasin and bubbling cup. As will be seen, this pressure tank is well under the ground; hence the water does not freeze in winter, keeps cool in the summer, and is free from any possible contamination.

Plate 30B represents a stage in the process of reconstruction. The patched plastering, the lowered blackboard, and the removal of the flue indicate that the building is now ready for the painter and the paper hanger. During the time the interior was reconstructed school was held in the teacher's cottage. The telephone shown in this picture is an interesting attachment to a district school and is very desirable in case of accident or of severe or sudden illness and in time of storm.

Plate 31B shows that the light is from the north and enters the room to the rear and left of the benches here shown. Adjusted shades make it possible to light the room fairly well even on dark days. A light ceiling and soft tan walls contribute to the lighting of the room and give it a pleasing appearance. A bookcase has been built in and is fairly well filled with books.

Plate 31A shows the south wall of the room and indicates how cross lights are prevented by shades in rooms in which windows are introduced on two sides. Note the reproductions of famous paintings, the phonograph, and the reed organ.

Plate 30A gives a general idea of the former dilapidated condition of the interior of the building and shows the bad arrangement of the desks—an arrangement more or less necessary because the stove occupied the main part of the room, and in cold weather it had to be kept so hot that the children could not sit very close to it. Note the dirty and dingy condition of the walls, especially around the flue.

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Chapter IX

TEACHERS' COTTAGES.

In Chapter II reference was made to the need of a cottage or a home on the school ground for the rural teacher, and it was there suggested that the establishment of homes for men teachers on school farms would greatly aid in the work of introducing and maintaining effective work in agriculture. It is obvious that unless rural school pupils can actually engage in experimental work in agriculture under the guidance of a competent teacher, what they learn from books will be of little practical value. But since the long vacation is coincident in most parts of the country with growing crops, unless the teacher remains in charge through the summer to guide and direct the work theoretically planned and organized during the winter months it will probably go by default. A school farm, therefore, should not only be at the disposal of the teacher, but a home should be furnished him and he should be employed by the year.

A question arises immediately whether the schoolrooms should be a part of a house designed for both purposes or whether the teacher's house should be a separate building?

In European countries, especially in small village schools, the teacher's house is usually under the same roof with the schoolrooms. In larger schools it forms a separate building, but is situated on the school grounds. While there is always an advantage in the protection of school property in having both buildings under one roof, some disadvantages are encountered. In the first place, the danger of disturbance to the school or the home must be considered. A teacher's family needs privacy; the school children require freedom. The playground should not be encroached upon, neither should the sanitary appliances be used in common by the school and the home. In general, it seems better under conditions in our country to recommend a division of the school grounds into two parts, one for the schoolhouse and playgrounds and the other for the teacher's house and the experimental farm and gardens. If every country school were supplied with 10 acres of good, well-drained land, and 3 acres of it were set apart for playgrounds and school buildings and the other 7 acres for a teacher's home and the school experiment farm, the ratio would be approximately correct

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for reasonable needs in most places. The best location of the teacher's cottages, with reference to the needs and demands of the school building, could only be made after careful consideration. Subtracting the land required for garden and for all the buildings needed for the teacher, there should be at least 5 acres of land left for agricultural experimental work. And by experimental work is not meant the wasteful use of the land, but the most profitable use

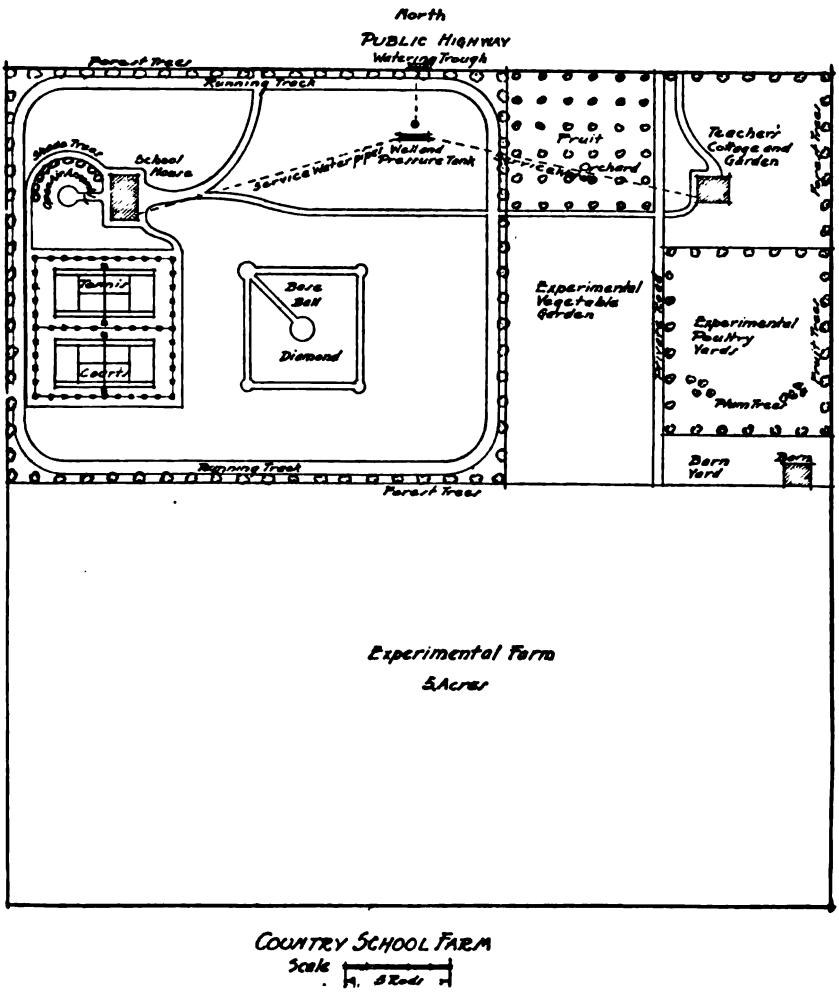

FIG. 36.—Country school grounds, showing farm of 5 acres.

of it. It is as much of an experiment and often far more useful to make an attempt to grow 100 bushels of corn, 2 bales of cotton, 300 bushels of potatoes, or 40 bushels of wheat to the acre than to attempt to grow some crop new to the neighborhood and of doubtful adaptation. Some experiments on new things are very important educationally, but these should not require much ground.

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Good experimental farming does not warrant rash experimentation. The proper and wise use of the 5 acres suggested could thus be made to serve not only as an object lesson for all concerned, but to add much to the revenue for the upkeep and the upbuilding of the whole school property. If farmers can see that in their own neighborhood 5 acres well cared for will bring better returns than 20 acres poorly cared for, one of the best lessons in community thrift and intelligent farming will have been learned. Besides, the attempt to make the school farm a model for the neighborhood will be the best possible incentive and responsibility to lay upon a teacher whose specific business it is to be the moral, social, and intellectual leader in the district.

The cottage for the teacher should be as far as possible a model of its kind for the neighborhood. A beautiful, well-planned, and sanitary cottage on the school farm would help in a definite way to stimulate the farmers to build better houses (not more expensive ones) and to reconstruct to a degree those already built.

What sort of cottage should be built? The complete answer to this question must of course be left to the authorities of the district. There are, however, some suggestions applicable:

1. It should be beautiful and as far as possible should harmonize with the general architectural treatment of the school building, if the latter is a modern type. An architect should be employed and the beautification of the useful be insisted on.

2. It should include a living room, a bath room, a kitchen, a dining room, and a sleeping porch. The number of bedrooms will probably not exceed two, and these should connect with the sleeping porch. The plans for the kitchen should receive a great deal of care, especially with reference to modern conveniences.

3. The sleeping porches should be models for the neighborhood. They should be carefully screened against flies and mosquitoes and should open from small dressing rooms, capable of being used as bedrooms when necessary.

To most people in this country it will be a surprise to learn that several States, notably Washington,[1] already have teachers' cottages in connection with many of their country schools. The cuts here introduced will give some idea of the nature and style of these cottages. The good example set by Washington, Nebraska, South Carolina, and other States should stimulate many others to progress in this direction.

In this discussion the importance of cottages for men teachers on school farms has been emphasized, but without any intention of overlooking the need of them for women teachers. Very fre-

[1] The State of Washington now has 83 teachers' cottages (March, 1914).

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quently a woman teacher has a hard time to find a satisfactory boarding place in the neighborhood, and for this reason alone will refuse to consider a second term in the school. Often the mere selection of a boarding place involves opposition from others who were in the race for the teacher's preference. Those who have taught in rural schools know how essential to success this matter often becomes.

Mrs. Josephine Preston, State superintendent of Washington, states in a recent communication relative to the development of teachers' cottages in that State:

> The teachers' cottages really came from the failure or refusal of one of the wealthiest districts in my county (when I was county superintendent of Walla Walla County) to furnish a place for the teacher to board. As a result a cookhouse was moved into the yard and banked up by the side of the schoolhouse, and there the teacher lived all winter. Next year the district built a two-room cottage. Pioneering for teachers' cottages is over with us. A teacher must be happy and comfortable in her home life to give the best service in the schoolroom.

Cottages for men teachers on school farms are, however, far more important, if we hope to increase the number of worthy men in the work of teaching in country districts.

Plates 37 to 39 represent teachers' cottages in various States. Plates 27–28 are reproductions from photographs of combination schools and teachers' cottages in Alaska. These are under the Alaska school service of the Bureau of Education.

As has been said elsewhere, if the country school is to do the work now generally demanded of it, teachers' cottages are necessary in many parts of the country. There is no practicable way of making the district school the real social and educational center of a community without keeping the schoolhouse open and the agricultural operations under supervision during the summer months. This will of course mean a change in the plan of hiring teachers, and, more especially, it will necessitate the employment of a greater number of men for rural school work. There are many difficulties in the way, and some of them may seem almost insuperable, but progress in country life demands these changes and in time they must be made.

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Chapter X.

CONSOLIDATION OF RURAL SCHOOLS AND SOME SPECIAL NEEDS IN BUILDINGS FOR SUCH SCHOOLS.

The relation of consolidation to schoolhouse construction has received less attention than the subject deserves. Many one-teacher district schoolhouses now unfit for use should not be rebuilt, and would not be if some one who sees in time what should be done would tactfully present to the people of the community the possibilities in consolidation.

A school building designed for the use of consolidated country districts will, of course, conform to the general hygienic and architectural rules for buildings of the size required, and hence there is no need of repeating those details here. But there is need of special emphasis on certain points; for a consolidated country school bears a peculiar relation to the community it serves.

In the first place, an assembly room is of special importance in these schools. The country children will find in assembly rooms the satisfaction of their desire for a wider social contact and companionship. Such rooms will also furnish opportunity for bringing parents together for entertainments, lectures, and civic gatherings. An assembly room is necessary for the morning exercises, and especially for chorus work. Music is much needed in such schools, and, as already pointed out, will appeal strongly to young people who have had to leave school. The difficulty of creating a school spirit and a neighborhood enthusiasm for general progress is greatly relieved by an assembly room.

In the second place, a commodious, well-appointed, and well-lighted library room is especially important in a consolidated school, both by reason of the need for a common center of reading and reference within the school and also because of the opportunity thus afforded to lend books and distribute them through the neighborhood. The books in a school library should be selected for both pupils and patrons, and every legitimate effort should be made to render them most useful. The library may thus serve as a sort of extension school in all that pertains to the interests of the community, in matters of agriculture, home-keeping, and sanitation, and in the dissemination of good literature.

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In the third place, manual-training rooms for both girls and boys are needed. This need has been emphasized elsewhere in this bulletin, and it is only necessary to say here that this larger community school should lead in attaching the school life to the home life. In the term "manual training" as used here are included all attempts at creative effort in any worthy field of useful home activity—cooking and sewing, canning and millinery, cabinetmaking and house planning, practical electricity and plumbing, and every other manual activity helpful for country people to know.

In the fourth place, some room or special building should be set aside for experimental agriculture and gardening. The statement has recently been made that if the methods used in seed selection and cotton culture on the demonstration farms in the South were universally applied by the farmers of that part of the country, the cotton crop would be doubled and would add $240,000,000 annual profits to the national income. This is only a sample of the opportunity these schools have.

Finally, emphasis should be laid on the need of an adequate supply of pure running water in order that lavatories, baths, and particularly a system of flushing toilets and of septic disposal of sewage may be installed in every consolidated country schoolhouse. This need is particularly characteristic of the consolidated school. A dignity and an importance never attached to the one-teacher school are attributed by the patrons to the consolidated school. It is their "big school." Even the country high school is rarely so close to the people as the consolidated school may become, because the high school does not touch so many homes directly, and because the average farmer does not understand the high-school curriculum so well as that of the consolidated elementary school.

Not long since the writer had an opportunity to travel over a portion of one of the Southern States in company with the several State officers of public education. One-teacher schools and also several central or consolidated schools were visited. Opportunity was afforded to talk with many farmers as we passed through the country, and the one lasting impression brought away was the personal pride everywhere exhibited by these country people in their "big schools." In all their conversation about them an eager interest was manifested, for the schools were opening to their children opportunities they themselves had never had. This sentiment is general. Along with this interest and trust in the school go the corresponding responsibility and prestige of the school in the community, because of which the community is inclined to adopt and employ what it finds in operation in the school.

Now, it is possible to supply schools and farmhouses with running water at no great expense, although the farmers will have to be

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shown how this can be done, and actually see the plan in operation before they will take much interest in it. Not, only, therefore, for the sake of the children at school, but as an educational agency for the community, all consolidated schools should be supplied with the best of sanitary fixtures and with pure running water.

Consolidation of schools does not always imply the necessity of the expense involved in transporting children from the abandoned districts to the central school. This is usually necessary only in sparsely-settled communities, where many schools have combined into one, or in rigorous climates, where walking would be dangerous for the children. In some parts of the country the question of transportation is often negligible, or nearly so. Generally speaking, if three schools in adjoining districts are combined into one, the children can still walk to school without danger or inconvenience.

Obviously the cost will be less to transport the children of two schools to the consolidated school when the number of children in the two schools will not total more than the number which one teacher can handle effectively, for the cost of a teacher and the maintenance of an extra building will more than pay the expense of public transportation.

Experience shows also that a saving in cost of operation may be effected if several one-teacher schools, with a small enrollment in each, are combined into one central building, in which the work can be done more effectively with fewer teachers. Here, as in the case suggested above, the saving in salaries, fuel, insurance, and repairs may be more than enough to pay the cost of transportation. Such a possible saving will depend largely on the distribution of the children in the districts, on the condition of the roads, and on the opportunity afforded for securing transportation of the pupils at a reasonable cost. If the school authorities are compelled to furnish wagons and if the combined distance is such that it is not possible to use fewer wagons than the number of schools abolished, the cost of transportation will easily exceed the saving.

For all schools in which the number of teachers employed would be equal whether consolidation were undertaken or not, the expense of transportation would likely overrun any immediate saving due to consolidation.

If new buildings are necessary in several single districts, and if instead of building a number of one-teacher schools the districts combine to build a central school, the immediate expense would be lessened. In the more densely populated rural districts many of the children from abandoned districts may be able to walk during a part of the year to and from the central school without serious hardship, and a definite saving in administration may be effected. Since the conditions are so diverse in different parts of the country, due to

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climate, to lack of good roads, and to social distinction of one sort or another, the financial outcome of any scheme of consolidation must be very largely a local problem.

A comparison of the immediate expense incurred for each school does not, however, always tell the chief part of the story. Sometimes consolidation actually costs more, dollar for dollar, and yet there may be a saving. The cost of schools should always be considered in the light of the results attained. A consolidated school offers better opportunity for effective grading and classification of the pupils than a one-teacher school, but above all it gives each child more of the teacher's time for personal help and guidance. A teacher whose school hours must be divided among the pupils of seven or eight grades, with 25 to 30 recitations a day, can not use her time most helpfully to her classes. Especially is this true with the younger children, who make up a large proportion of pupils in country schools. Young children need adequate guidance and abundant drill in their work. This is possible only where the teacher is not overburdened with a great number of classes. It may easily happen, therefore, that a dollar spent for work in a one-teacher school, where all grades are represented, will not and can not bring as good returns educationally as one-half of that amount spent under better conditions in a consolidated school.

The consolidated school, with fewer grades for each teacher but with larger opportunities for drill in essentials, opens therefore an encouraging prospect for some relief from this lamentable weakness in average rural communities. In this particular alone the added cost of consolidation, if there be any, may and ought to increase the educational efficiency of the schools to such a degree as to more than warrant the extra expense. This is just one phase of the increased advantages which may be derived from consolidation. In addition, more ground can be covered in all subjects, more specialization can be demanded of the teachers, better hygienic conditions can be secured, better supervision will be possible, and particularly the civic life of the community will be quickened in many ways. Wherever consolidation has been wisely handled the people have usually kept their children in school longer and more regularly. Many consolidated schools have thus been able to bring to the rural communities the advantages of one or two years of secondary training, and in some places a full high-school course, which was impossible before consolidation. Thus in a certain consolidated school far out in the country four teachers are teaching in one building all the children that before consolidation had required six teachers and six buildings. In addition to all the usual subjects of the grades, there are in this central school, which is presided over by a vigorous well-educated

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man, classes in Latin, French, geometry, algebra, physics, and general history. Literary societies have been established and, perhaps most interesting of all, one teacher has regular classes in music and is training the children in chorus singing. A new piano, a product of community enthusiasm, dignifies the assembly room. In such an environment as this, civic life is engendered and local patriotism is fostered.

In what has been said with reference to the advantages of the consolidated country school there is no desire to underestimate the value of the one-teacher school in the life of the community. With a good building, well arranged and well located, and with a well-paid teacher, the one-teacher school may serve its patrons and all the people within the district boundaries as well as a consolidated school. This excellence will depend on the initiative and wisdom of the teacher with whose rare leadership it is indispensably associated. Such a teacher is hard to find and hard to keep. But the consolidated school has opportunity for larger cooperation, and can more readily command the services of teachers who have proved themselves leaders.

One consolidated country school in Wake County, N. C., has a cotton patch on the school grounds, planted and cultivated by the pupils. From the proceeds of the sale of the cotton grown on the grounds, furnishings and equipment were purchased for the school. On the second floor of the building there is a small but convenient assembly room in which is a good piano purchased by funds from the school-garden products. In this school several high-school subjects are taught, literary societies have been organized, and community interest has been developed. It is worth a great deal more for a pupil to attend this school than a smaller school, even though the subjects taught be the same, for here he comes in contact with a larger neighborhood environment, enlarges his acquaintance, gets the help of better teachers, and is brought into healthy competition with more children of his age and general qualifications. The attitude of the neighborhood people toward this school and its work is interesting; they feel that it is their "big school" and that their children are honored in attending it.

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Chapter XI.

SANITARY AND CONVENIENT WATER SUPPLY FOR COUNTRY SCHOOLS.

The two most important sanitary needs of country schools, outside of the school building and its requirements, are sanitary toilets and a safe and abundant water supply. The results of the investigations of water supply for country schools detailed in Chapter III, as well as the results of other similar inquiries, make it clear that the drinking water furnished the children is often impure and dangerous. The experience of most country-school teachers will bear out this statement.

Springs and farm wells are the usual sources of water supply. The springs are usually at some distance from the schoolhouse, and generally on lower ground. They are often poorly shielded from immediate contamination, and often receive the drainage from swampy ground, much-used pasture lands, or other defiled areas. In fact, they furnish merely slightly purified surface water. In general, they issue in open pools. These pools are depositories for leaves, dust, and dirt; insects find lodgment therein; various animals share in their use. Despite all these sources of pollution most people are brought up to believe that no water is so pure as "spring water." To be sure, there are many springs which furnish fairly pure water, and many others which if properly cared for would be safe, but the number of these is small in comparison with the number that are unsafe. Bacteriological and chemical examinations made at frequent intervals are the only safe guides. Possibly of all springs the small intermittent, dribbling ones are the most dangerous, for, getting their supply from the immediate surroundings, they discharge surface drainage which has had small opportunity for purification, either by filtration or by any other means. Springs in limestone regions are often subject to contamination by reason of the fact that the underground channels through which the water flows are often connected with sink holes partly filled with water and used as a water supply for cattle, hogs, and other domestic animals. Water from such sources may be carried long distances with limited opportunity for aeration, filtration, or purification of any kind.

All these facts, and others which might be mentioned, emphasize the need of caution in the use of springs as a source of water supply

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for either country schools or country homes. Possibly the chief danger arises from the fact that any sort of spring is used and is generally poorly cared for. Further, many opportunities are afforded for pollution from dirty buckets and careless methods of transportation before the water is put into a sanitary receptacle in the schoolroom.

When farm wells are depended on for drinking water, the school authorities rarely have any direct control over them and rarely make any investigations to determine whether the water taken from them is wholesome and safe. Many farm wells are improperly cared for and receive infected surface drainage. The logical conclusion is that unsafe water from them is frequently supplied to school children. Just as in the case of springs from which water is carried in pails to the schools, the supply from such wells is open to serious objections. It is troublesome to have always at hand fresh water, and consequently children are often required to drink water which has stood for hours in an open bucket. Furthermore, dependence is placed on the boys to fetch the water, but they are not careful, and not infrequently return with a half pail of water more or less contaminated by their carelessness.

Whenever attempts are made to furnish a well for these schools the objection is usually urged that wells at schools, because they are used only about half the year, are soon in bad condition and are more dangerous than farm wells. There is truth in this contention, but it is owing largely to the fact that the wells are improperly located and improperly constructed in the beginning.

A dug well can be made a safe well, provided all the water flowing into it comes from a pure source; but it will cost more than many school officers are willing to appropriate to make it safe. A driven well can often be sunk to a much greater depth, thus insuring better filtration; it can be so cased-in as readily to cut off surface drainage; and it frequently costs less than a properly constructed dug well; hence the driven well should be preferred for country schools.

There are, however, many erroneous notions concerning the purity of the water from a driven well. There is no difference between the purity of the water from a driven well and of that from a properly guarded dug well of the same depth. If both are shallow and are so placed as to gather surface drainage from infected soil, they will be equally dangerous. The only advantage such a driven well would have over the dug well would arise from the fact that, unless the dug well were securely covered and the casing made water-tight to the lowest water line, surface infiltration into the driven well would be accomplished more slowly and more opportunity would be offered for purification. The main source of supply would be the same in each case.

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If a driven well is forced through an impervious stratum of hard clay or other material into a deep-lying water-bearing stratum which has no direct connection with the surface of the locality, and if the boring about the pipe where it is driven through the impervious stratum is securely sealed against infiltration from above or pressure from below, local insanitary conditions would have very little or nothing to do with the purity of the water obtained. The problem then would be to determine if possible the source from which the deep-lying water-bearing stratum gathered its supply. This might be from a long distance. A study of the geologic formation of the district would be necessary to determine where such water entered, for it must be remembered that all ground waters, whether near the surface or deep seated, were once surface waters and came from rains or snows. A flowing or artesian well may be dependent on surface connections hundreds of miles distant.

Sometimes, especially in mineral regions, a deep driven well will draw its supply from highly mineralized waters, and hence may furnish water disagreeable to the taste and even dangerous for drinking. Some mineral waters are wholesome and healthful, but it is always safe to know the chemical constituents of suspected water before using it freely.

Ordinarily a driven well with a force pump is the safest well, other things being equal, that can be provided either at the farm home or at the country schoolhouse. Of course, it is not always possible to supply this kind of well on account of the geologic formation. But wherever a good water supply can be reached at a good depth, the driven well is safer, because there is less opportunity for defilement.

When a driven well is properly placed and is sufficiently deep to warrant a supply of pure water, a drinking fountain can be attached to the pump, as indicated in figure 37. This will necessitate a good cement foundation about the pump and about the drinking fountain, ready means of carrying away the waste water, and such an attachment of the fountain to the pump that the pressure tank will be below the freezing line and also deep enough to keep the water cool in the summer. Plate 43 represents such a fountain in use. If the well is a driven one, an excavation sufficiently deep to place the tank and its connections well below the surface of the ground may be made, and the attachment be made to the pump in the same fashion as shown in the cut.[1]

If a large pressure tank were substituted for the small one shown in figure 37, not only could a drinking fountain be supplied, but lavatories, flush toilets, baths, laboratories, and a faucet for hose as pro-

[1] Thanks are due to the manufacturer and to State Supt. Francis G. Blair, of Illinois, for the privilege of reproducing these cuts.

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tection against fires, or for general garden use could be installed, because all that would be needed would be the necessary pipe connections. Naturally the drinking fountain, the tank, or any outlet from this pressure tank could be located in the most convenient and acceptable place.

Figure 37 shows a cross section of the well with the pressure tank and valves and all necessary fixtures. By operating the pump

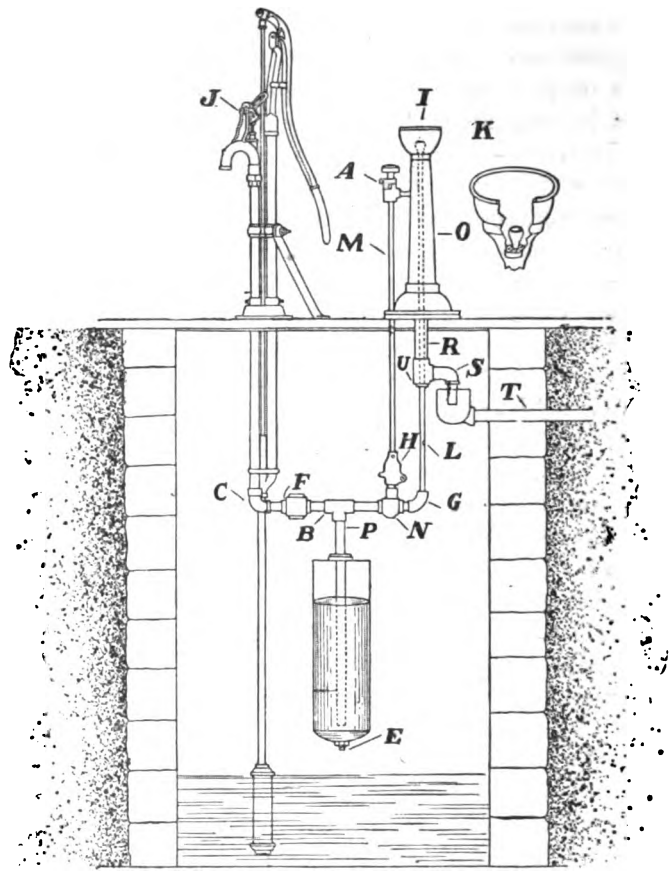

FIG. 37.—Cross section of drinking fountain attached to pump.

handle the water is forced in at the bottom of the pressure tank, thus compressing the air at the top of the tank. With each stroke of the pump handle the tank receives more water, and the air at the top is more compressed. A check valve placed between the pump and the tank relieves the pump from all back pressure. A self-closing valve is placed between the pressure tank and the supply pipe leading to the bubbling cup. To get a drink of water the child turns the little handwheel at the side of the bowl, which opens the valve below.

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The air pressure in the tank forces the water to bubble up through the bubbling cup. In the course of the process the waste water escapes through the outer pipe at R and out through the pipe T. It will be necessary to make these waste pipes water-tight, so that none of the waste water would fall back into the well. The waste pipe shown at T should be carried to a safe distance from the well, so as to prevent any possible infiltration.

The same care should be exercised in carrying away drainage from a driven well as from an open well, though, of course, the danger of rapid infiltration is not so great with the former, unless the wall casing and covering of the open well are made impervious as far down as the lowest water line.

Experience has proved that individual drinking cups do not satisfy the demands for good sanitation at schoolhouses and that the only sanitary and convenient contrivance is some form of drinking fountain.

It is a common habit where individual cups are used, for one pupil to exchange his cup with another pupil and to feel it a sort of honor to have others drink from his cup. The children often carry their cups in their pockets, or expose them so as to receive the dust from the schoolroom, and in many ways they offer opportunity for contamination. Theoretically, individual cups would seem to satisfy all requirements, but in practice they do not, simply because neither the children nor the teachers, however careful they may be, can be certain that exchanges are not made and that the cups are kept in a clean condition.

There is a simple form of fountain not dependent upon running water which is usable in country schools. This consists of a receptacle to hold a supply of water; the water is thrown up through the bubbling cup by the force of gravity, the waste running into the bucket shown below. There are several adaptations of this kind of fountain. The chief requirements are some means of keeping the water cool, a ready means of catching the waste water, a tight cover to prevent the entrance of dust and dirt, and a possible adjustment of the bubbling cup to the various heights of the children. Naturally the water served in such receptacles must be taken from a pure source and be kept from contamination. It is possible, with this form of fountain, to boil and cool the water before it is introduced into the receptacle and thus to insure its safety. The practice of putting lumps of ice directly into the water is questionable, unless it is certain that the ice has been made from pure water.

In practice these fountains are not always kept in sanitary condition, not being thoroughly and satisfactorily cleaned often enough Despite everything done, a sediment from the water and possibly

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also vegetable matter will gather on the sides of the receptacle, and make it insanitary.

Fig. 38 represents a well incased with large glazed sewer tile and dug in a place where the dip of the impervious strata is clearly marked. Under such conditions it is evident that one side of this well needs more careful protection than the other. If an unpro-

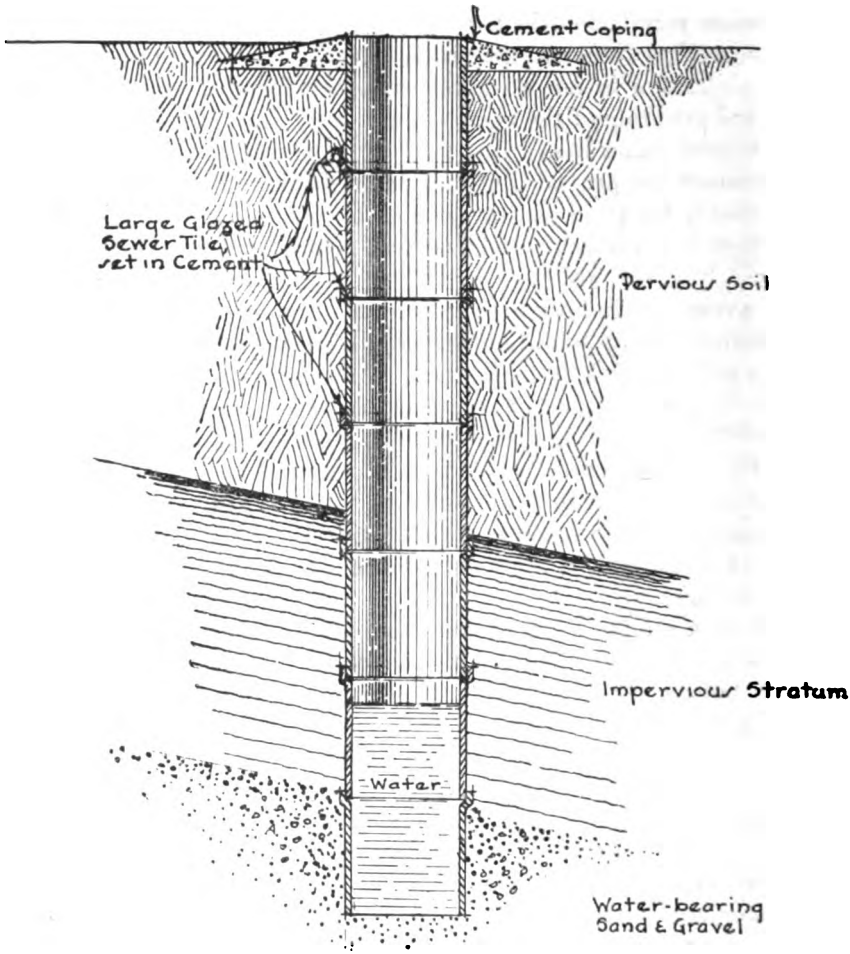

FIG. 38.—Well incased with glazed sewer tile.

tected privy were situated on the side where the impervious strata lift toward the surface, there would be danger of infiltration, even if it were placed at a comparatively great distance, whereas, if it were placed at a reasonable distance on the other side, the danger would be small. This cut, of course, is not meant to represent usual conditions, but it does represent conditions met with at times in various parts of the country.

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Chapter XII.

SANITARY PRIVIES FOR RURAL SCHOOLS.

From the point of view of decency and sanitation the toilet facilities of great numbers of our country schools and country homes are bad. This statement is based on data obtained from the teachers of two counties of each of 18 States representing as nearly as possible typical conditions, from the report of a survey of farmhouses made by the various State agents of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, from a report of a school sanitary inspection of 3,572 district schools by the Pennsylvania State Department of Health, from an investigation made under the direction of the joint committee of the American Medical Association and the National Council of Education, and from data gathered by various other more or less local surveys.

By reference to Chapter III of this bulletin it will be seen that in 631, out of 1,232 schools reporting, the toilets were adjudged insanitary, and that these 1,232 schools were probably typical of the whole country. The tabulations made of the results of the Pennsylvania survey make it clear that at least 50 per cent of the privies of the 3,572 schools inspected were in an insanitary condition. The Rockefeller sanitary commission found, as the result of a survey of 103,346 farmhouses in 11 Southern States, that 50,637 of them have no privies at all. The report does not make specific mention of the sanitary condition of the privies that were observed, but it is probable that a large majority of them were and are insanitary.

More than a hundred photographs of both exteriors and interiors of rural school toilets, and careful notes made on the ground by the field agent of the joint committee of the National Council of Education and the American Medical Association make it clear that less than 5 per cent of the toilets of the 109 rural schools examined in Connecticut, New York, Vermont, Maryland, and New Jersey [1] are sanitary or even passably decent. One privy, typical of many, was fairly new; and the schoolhouse was not old. The privy was within 3 feet of the schoolhouse. When examined in the summer of 1913 by the field agent of the joint committee, the privy was used by both boys and girls; it had no partition; the door had no lock. Eleven obscene

[1] See p. 29.

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pictures were found on the inside. The feces fell on the surface of the ground and were exposed to flies; there was an offensive odor; and apparently no attempt was made to clean, deodorize, or disinfect the building. Many worse privies than this were found. By most teachers and officers of rural schools these data will not be questioned, because all who have worked in country schools and are familiar with country life know by experience that the sanitary conditions ordinarily prevailing at country schools and farmhouses are very bad. Those who are engaged in the attempt to eradicate hookworm disease from our country have concluded that, although they may relieve and cure great numbers of people by the proper use of thymol, their work will never end unless sanitary toilets on the farm and at the school are constructed; for as long as the soil about homes and school buildings is continually contaminated, these depleting parasites will continue to infect and reinfect the children.

But this is not all. We know that typhoid fever is a germ disease, and that insanitary toilets, through the agency of flies and infected water, are among the chief means of spreading this dangerous disease, in cold as well as in warm climates. Proof has been brought forward again and again to show that where absolute cleanliness in this regard prevails typhoid fever generally disappears. Doubtless other diseases also have their origin in the lack of sanitary privies, but it is surely enough for our purpose to know that this lack bears to these two dangerous diseases the close relationship of cause and effect. Considered merely from the economic point of view, typhoid fever costs enough each year to go a long way toward paying for the construction of sanitary and decent toilets at every farm home.

Aside from the danger to health, common decency demands relief. Possibly there is no better test of the real sensibility of a people than that of cleanliness. Wherever you continually find filthy gardens, nasty barnyards, and unwholesome school conditions, you are certain to find crude and uncouth people. If country life is ever to surpass the best of city life in comfort and refinement, and there is no fundamental reason why it should not, these conditions must be changed, and country school teachers must play a large part in bringing about this change. Country schools must teach the truths of sanitation, and they must also set the example of building sanitary toilets and of keeping them in good condition. They must complete their teaching through demonstration of theory by fact, through cooperative activity with the people.

The first question for practical consideration is this: What are the essential requirements of sanitary toilets for country schools?

The first requirement is that the toilets be convenient and easily accessible to the children, so that in cold or inclement weather there

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shall be attached to them no thought of exposure and no feeling of reluctance.

The location of toilets in country schools is a troublesome matter. If they are detached from the school building, they must ordinarily be removed some distance for the sake of both propriety and wholesomeness. But to locate these necessaries outside of the school building is to incur the difficulties connected with inconvenience, bad weather, and the dangers of neglect, and to invite indecent liberties of various sorts. Even when washout or flush toilets are located outside, it is difficult to prevent defilement, rough usage, and unchaste, if not immoral, practices in connection with their use. Although all these results do not necessarily follow outside location, the most rigid supervision is requisite to prevent these outbuildings from becoming insanitary and loathsome.

When dry-vault toilets or those with septic tanks are used, it is best to locate them at a distance from the school building. As these are the only forms of sanitary toilets that the great majority of rural schools will be able to supply, the twofold problem of their location and construction must be considered carefully. The small size of the country school lot makes the problem more difficult. The usual half-acre lot can not well be divided by a hedge or fence into two equal parts, for such division would destroy all possibility of a fairly good playground. On the other hand, unless some screen is introduced, the lack of privacy in the use of toilets during the intermission periods, when they are most used, is serious and indelicate, to say the least. Such lack of privacy often causes much reluctance, annoyance, and distress.

The usual locations selected for these toilets are the two opposite corners in the rear of the school lot. Under no condition is it advisable to make a single outbuilding, using one half for the boys, the other half for the girls. The buildings must be well separated. Screens of vines can be used to great advantage in most climates in summer, but as the main part of the school term is in the winter season, in cold climates evergreen shrubs so planted as to shield the buildings and to inclose the walks leading to them are more helpful. In the Southern States the English ivy stands the winters very well and is an ideal vine for covering such buildings and shielding the approaches to them.

Basements afford the most economical and on the whole the best location within the buildings for flush toilets. These can be connected with sewers or with septic tanks elsewhere described.

The second requirement for outside sanitary privies is to construct them in such a manner that the soil around and underneath the school building shall be kept free from contamination. This precaution is necessary on small lots; especially where a well furnishes

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drinking water. The ordinary privy set over an excavation in the soil that is not water-tight is dangerous, because of possible contamination of the water supply. Many rules have been given for regulating the distance from the well at which such cesspools may be located; but, obviously, no safe general rule can be formulated, for the character of the formation, the kind of soil, and the dip of the impervious strata will in all probability be different in each school lot. Sandy loam, with an impervious substratum dipping toward the well, would allow the passage of pollution through a long distance, especially in rainy weather. On the other hand, a clay soil, with an impervious stratum dipping in the opposite direction, might be safe, as far as infiltration is concerned, at a comparatively short distance from the well. Unless absolute assurance can be given that there is no danger of infiltration and that proper protection in every way will be afforded, a cesspool should never be allowed on the ordinary country school lot.

In order to emphasize the seriousness of the cesspool form of toilet at country schools, the following extract from a recent letter by Dr. W. J. Kernachan, health officer of Lauderdale County, Ala., is given:

> In making a health survey of the rural school children of this county recently, I collected a sample of the water supplied to each school. An examination of these specimens by the State pathologist reveals the fact that 19 out of the 20 collected contained fecal matter.

Dr. Kernachan does not state the source of the water supply, whether from house wells, springs, or wells on school lots. But it is evident that either at the schools or at the farm homes, or at both, the most elementary principles of sanitation are neglected. Open cesspools or even worse conditions must prevail to bring about such a condition of the water supply.

The discussions that follow, and the figures introduced, have been prepared with the hope that they will afford country school officials and country people in general some suggestions in regard to the construction of more sanitary toilets, both at schools and at farm homes. No attempt has been made to illustrate all the possible forms of the sanitary privy, but a sufficient number of cuts and descriptions have been introduced to meet the varied conditions found in different parts of our country. Details with reference to plans, specifications, and cost are not given. Conditions are so diverse, and the cost of materials and labor varies so much in different parts of the country, that such details would not be of general value. Most country carpenters under direction of teachers or school officials can carry out these suggestions or adapt them to local conditions.

The accompanying description of a form of dry privy, and the cut represented by figure 39, are taken from the leaflets sent out by the superintendent of public instruction of Virginia:

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Two dry closets shall be constructed similar to that indicated. These closets shall be located at or near the opposite corners of the rear line of the school lot, and should be at least 150 feet from the school building. Proper construction is of the greatest importance. The house should be well built, so as to be comfortable in winter, and have a sound roof so that the interior will always be dry. A house of this size should not have more than two seats. These should have tight-fitting hinged covers that would stay down, except when in use. In a corner of the house there should be a bar-

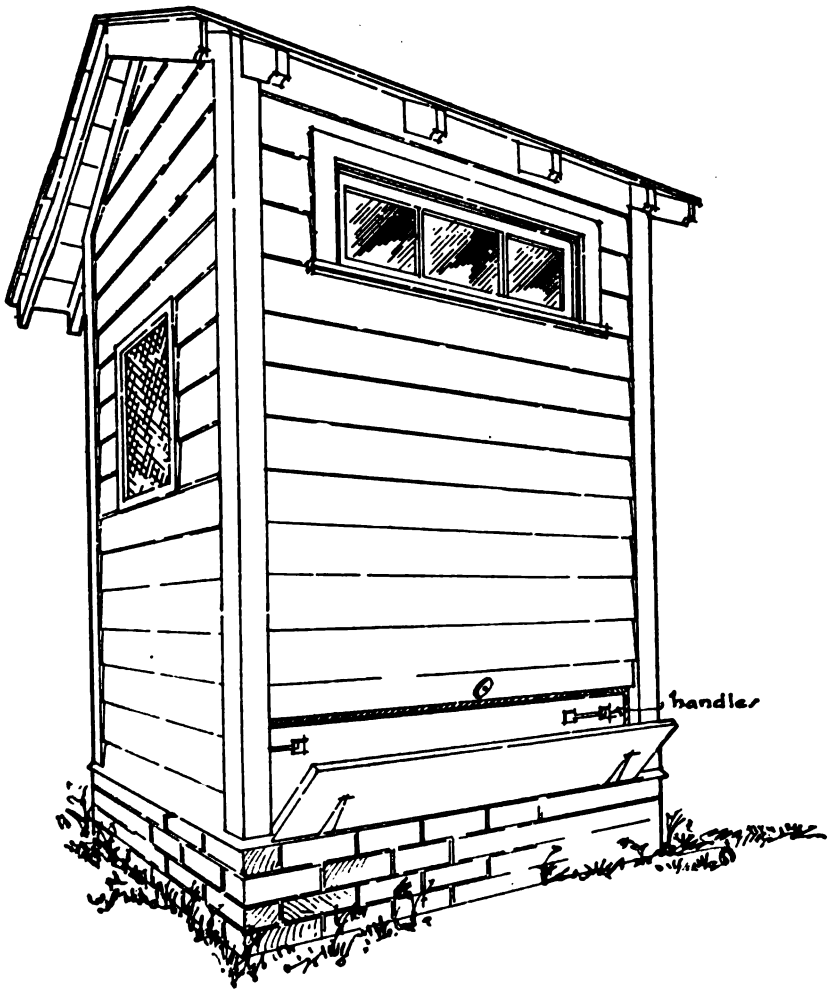

FIG. 39.—Form of dry privy recommended by Virginia State department of public instruction.

rel of powdered surface soil that has been dried in the sun, and a scoop holding about a pint. The door should fit tightly, and any windows or apertures should be screened with fine wire so as to absolutely exclude flies. The construction under the seat may be of several kinds, any of which will be safe, provided a few points are observed.

The "night soil" must be kept in some receptacle which can be kept dry and off the ground, and so constructed that it can be easily removed and cleaned. The contents of the receptacle must be protected against flies. These are the important

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points. A box made of sound, heavy timber, well braced, and tight enough to prevent leakage, will be good. It should be set close under the seat, and the opening back of it protected by a door which closes tightly enough to exclude flies. This is shown in the accompanying drawing. The floor of the box should be covered with about 4 inches of dry earth before it is used. Each person using the closet should empty on the contents about a pint of the dried earth. If the earth is used in abundance, the material will in a short time become relatively inoffensive. When not more than half full, the box should be placed on a wagon and moved to some distant field and the contents be dumped into a hole and covered with earth.

The chief difficulty with this arrangement arises from the likelihood that the box will not be emptied often enough. If the box were set on runners, sled fashion, handling would be easier and more expeditious. In this case the box should be made particularly strong. From the sanitary point of view the chief requisites are the use of plenty of dust, complete exclusion of flies, and safe disposal of the contents of the box.

One seat should be about 11 inches high, to accommodate the smaller children, the other about 15 inches high to accommodate the larger pupils.

The district school officers must hire some one to remove and empty this box at regular intervals, without the necessity of the teacher calling his attention to the need of so doing. The teacher should inspect these buildings often and should see that all sanitary requirements are regularly carried out.

Figure 40 represents a boys' double toilet with partition between the two seats. The seats are of different heights; one to accommodate the smaller boys, the other the larger. Each stall is 4 feet wide, 5 feet deep, and 7½ feet from floor to a line on a level with the eaves. Doors are to be 2½ feet wide and 6½ feet high, swinging out. The seat boxes are each to be 2 feet in length from partition to dust bin, one 14½ inches high, the other 11 inches. The width of the seat board should be 15 inches. The dust bins should be 3½ feet and 2½ feet high, respectively; 2 feet wide from seat box to outer wall, and 16 inches from front to back. The ventilators above the doors are set to be sheltered by the wide eaves from driving rains and are to be carefully covered with a good quality of fine wire screen. The high windows should be fastened and are not to be opened. The floor and the roof must be made tight, both to protect against inclement weather and to keep out flies. The lids of the seats should close automatically after use. The doors should be well made and hung with strong hinges to prevent sagging. It is always well to set the doors in such a way that they will close of their own weight. Good locks should be used instead of the ordinary hooks generally used on the doors of such outhouses. This will prevent the doors from being left open for the entrance of flies and the privies from being used by tramps when school is not in session. Ventilators should be

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set in the rear as in front. Either buckets or a dry pit, like that in figure 41, should be used to receive the night soil. The height of the dust bins will prevent the boys from using them as urinals. Those in the girls' building may be made lower, if desirable. Some practicable scoop should be supplied for each bin. If preferable, an opening at the bottom of the bin can be made for taking out the dust,

FIG. 40.—Boys' double toilet, with partition between the seats.

and a lid be fastened over the top. This would help to prevent defilements of any sort.

The form of dry toilet shown in figure 41 will be satisfactory and sanitary only when sufficient dry loam dust is used to absorb all the moisture and to neutralize all odors and septic matter introduced. It will be observed that the pit is to be made of brick and concrete and hence will be practically water tight, to prevent leakage and also seepage from the ground. This form requires the selection of

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sloping ground upon which to build the privy, otherwise it would be difficult to remove the night soil from the pit. The lids to the seats should be made to fit closely and to close automatically when the seats are not in use. The lid closing the opening of the pit in

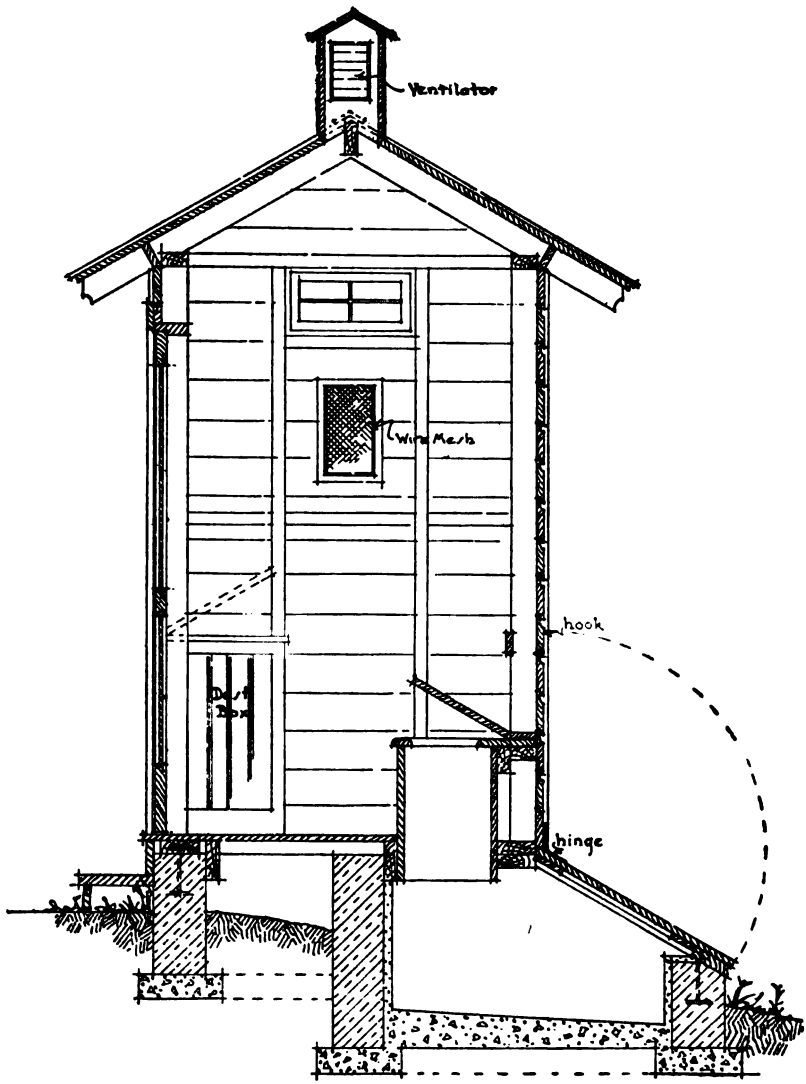

FIG. 41.—Dry toilet with pit.

the rear should likewise be carefully made and adjusted, in order to prevent leakage from beating rains and also to prevent the entrance of flies. The pit should be cleaned as frequently as safety and decency dictate. Cleaning may be accomplished in this form of toilet by shoveling the night soil into a box placed in a wagon and

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then carting it to a safe distance in some neighboring field and burying it. The night soil should never be deposited in a field where vegetables are grown, and always at a safe distance from a well or spring.

A well-built bin at least 3 feet high should be located inside the toilet for the purpose of storing a good quantity of dust where it is readily available. Sand should not be used. Dusty loam from dirt roads is excellent. In default of this, well-pulverized dry soil taken from a neighboring field will serve. Some objection might be raised to the height of the bin, on the ground that the smaller children could not readily and easily get at the dust. Although this height may be open to this objection, it will tend to prevent in the boys' privy a more serious difficulty, for if a lower bin is put in, some of the boys will use it for a urinal; furthermore, an outflow for the dust can be made near the bottom of the bin and the lid fastened. Then, too, this height will make it possible to provide more room for storage without encroaching too much on the floor space. Furthermore, while it is useful to instruct all the children in this method of sanitation and to urge them to use the dust without fail, children will forget, and the teacher should see that dust is applied daily. Otherwise insanitary conditions will prevail. The school officers of the district should be charged with the duty of seeing that the pit is cleaned as often as necessary, the teacher reporting to them.

If two seats are made in each room, one should be about 11 inches and the other about 15 inches high. The seats and lids should be kept clean, and sanitary toilet paper should be provided.

Figure 43 represents a slightly different form of dry toilet with a box for dust in the end, one seat 15 inches high for the larger boys, one 11 inches high for the smaller boys, and an open-air urinal trough delivering into the vault. The urinal trough is shown 14 inches above the ground near the outlet and 26 inches at the upper end. This arrangement will give good drainage, as well as accommodate both the smaller and the larger boys.

The partition between the seats will serve to give more privacy. The door is made to swing either way; but it should be provided with an interior latch, and a lock on the outside so that when school is not in session the building could be kept locked to prevent it from being used by tramps or other passers-by.

In this as in all other forms of dry toilets, the two essentials for sanitation are the regular use of dust to cover excreta and the safe disposal of the refuse. Small openings covered with fine wire screen should be made for ventilation. These can be introduced in the front, near the roof. Every precaution should be taken to exclude flies and

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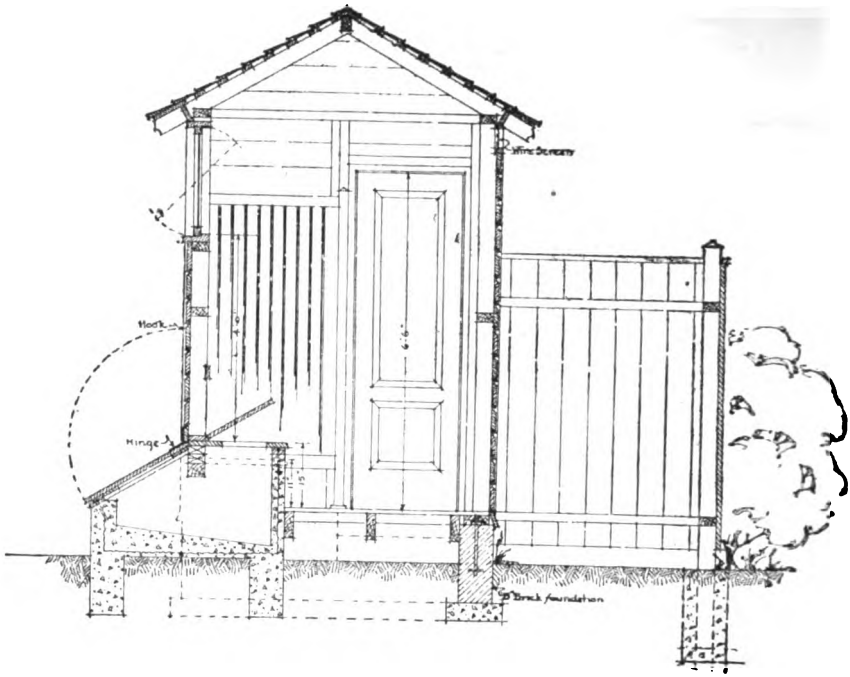

FIG. 42.

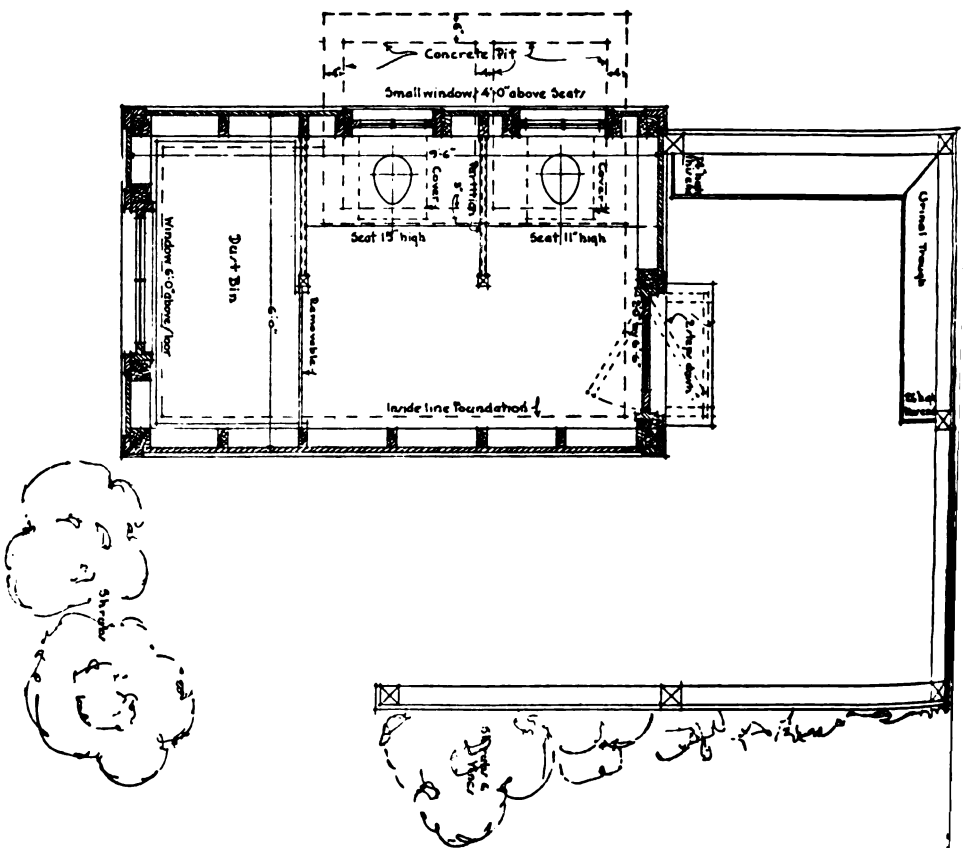

FIG. 43.—Dry toilet with pit, and open-air urinal trough.

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mosquitoes. The lids carrying the seats should be so placed as to close automatically.

Figure 44 suggests a form of dry toilet with buckets for catching the night soil, thus making it necessary to dispose of the collected material oftener and also making it possible to do this more expedi-

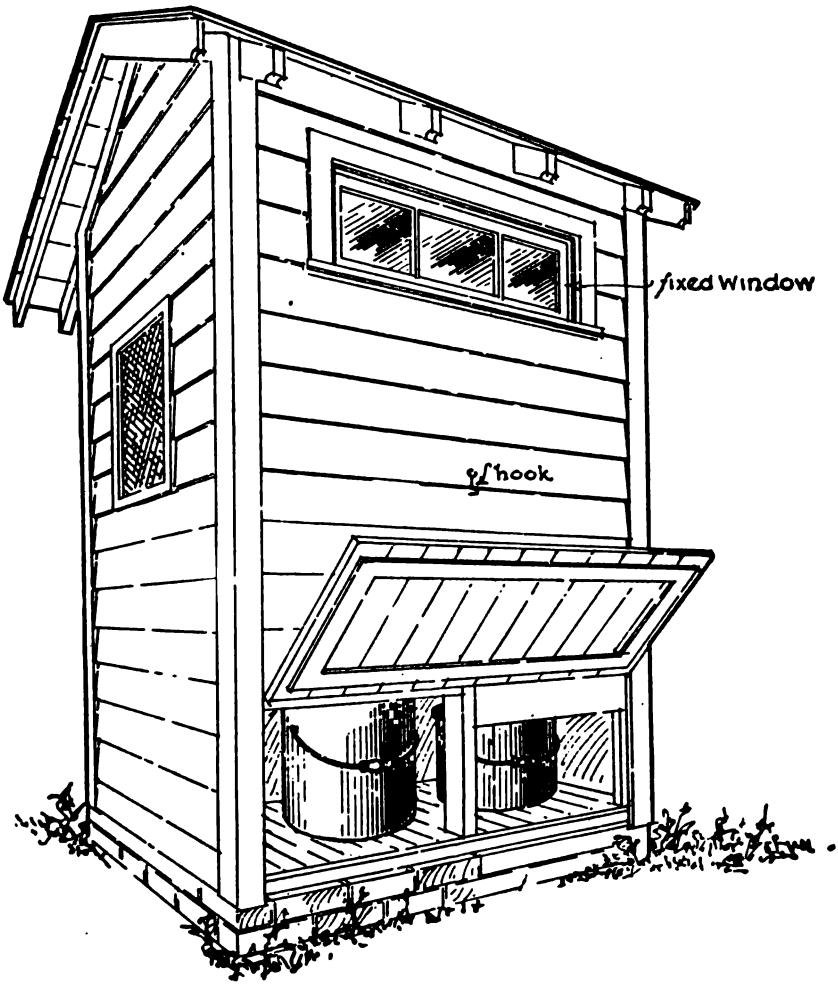

FIG 44.—Dry toilet with buckets.

tiously. Those who attempt to follow these suggestions should be sure that the buckets are large enough and high enough to reach sufficiently close to the seat to prevent defilement.

These buckets should be removed and well cleaned before they are completly filled, and then 2 inches of dry loam dust should be thrown into them before they are replaced for use.

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One of the buckets is about 4 inches shorter than the other. This fact, of course, will suggest a corresponding difference in the levels of the two seats, the higher one being approximately 15 inches from the floor, the other about 11 inches. The lids of the seats should be made to fit and to close automatically. The trapdoor in the rear should

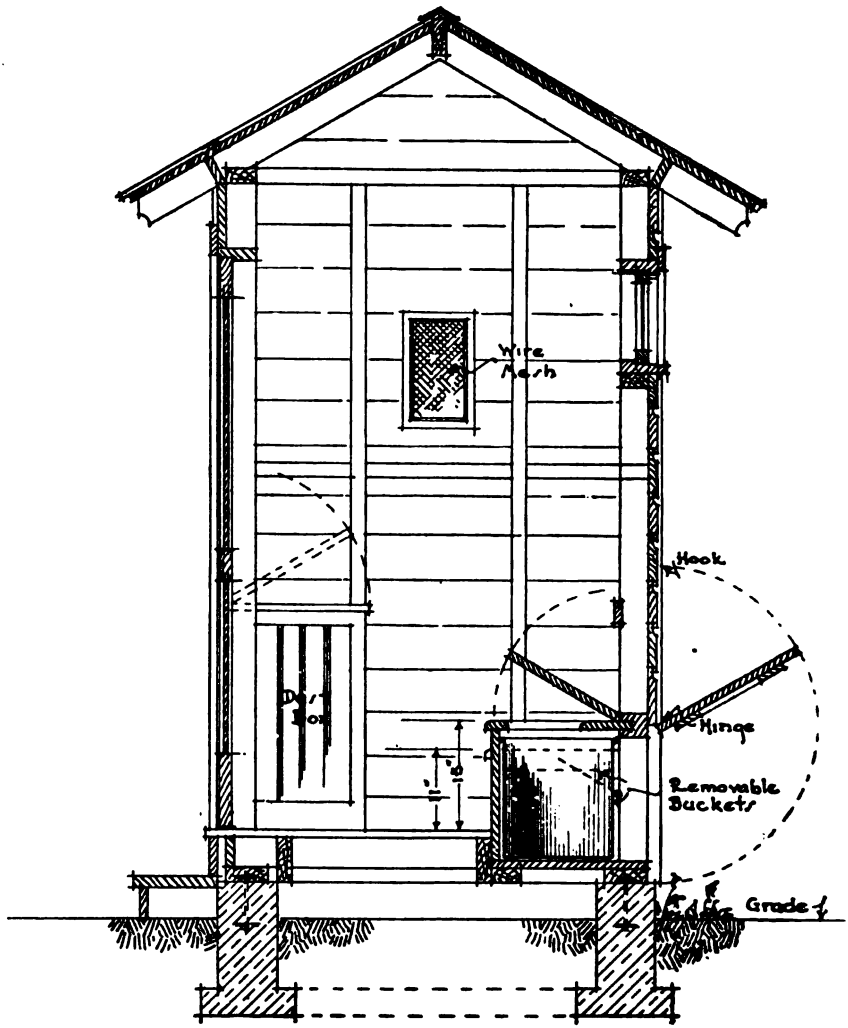

FIG. 45.—Section drawing of privy shown in fig. 44.

be kept securely fastened and be opened only when the buckets are to be emptied. The whole structure should be neatly built and carefully finished, dust bins included, as described in connection with figure 41. The drawing is meant to represent a building 7½ feet high at the eave lines, 5 feet wide and 8 feet long, outside measurement.

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Separate stalls should be provided in this and other detached buildings of a similar type, so that one side may be used by the small boys, the other side by the larger boys. The same suggestion should be followed for all detached buildings for girls.

The form of toilet known as the "L. R. S. privy" was devised by Dr. Lumsden, Dr. Roberts, and Dr. Stiles of the United States Public Health Service. One of the simplest forms of it is represented by figure 46. This form consists of a water-tight barrel with seat arrangement fitted over the top and a connecting T pipe leading from the barrel to an outside effluent tank made of a bucket or a barrel and securely covered to prevent mosquitoes and flies from entering it.

The house covering this toilet will leave the small tank on the outside, which will be adjusted to the floor line as shown in the cut. This will necessitate placing the barrel in a pit or sinking it in the ground so that the top of it will be flush with the floor of the toilet building. It is important that the building be made proof against flies and mosquitoes and that it receive sufficient sunlight to keep it wholesome. The theory of the action of this toilet is exactly the same as that in any septic-tank disposal system. In the beginning the barrel should be filled with water up to the level of the outflow, then, to aid the action of the liquefying bacteria, a small quantity of well-rotted stable manure should be thrown into the water. The action of bacteria upon the excrement is to liquefy it, and, as the water line in the barrel rises, this liquid will flow out into the outside tank, which can be carted off and emptied in a safe place. The simple form shown in this figure makes it possible for this toilet to be constructed at a smaller expense than any other form of septic tank. It, however, necessitates the removal of the outside effluent tank and discharging the material. Chemicals which would destroy the liquefying bacteria should not be used.

Figure 47 represents the same form of privy built in concrete so as to be permanent. In this form, however, instead of being movable the effluent tank is stationary, and the fluid must be pumped or drawn out and carried away in separate vessels.

There is no reason why this form of toilet should not be connected with subsurface drains, like the other septic-tank disposals mentioned further on. If the ground upon which the toilet is constructed is properly sloping and the soil sufficiently porous to permit the proper purification of the subsurface through which the drain tiles are spread, then the necessity of carrying away the liquid material would be obviated. Experiments made with this form of toilet prove fairly conclusively that the fecal matter is liquefied; that there is comparatively little odor about the building; that if the structure is carefully built both above and below ground it may be made safe

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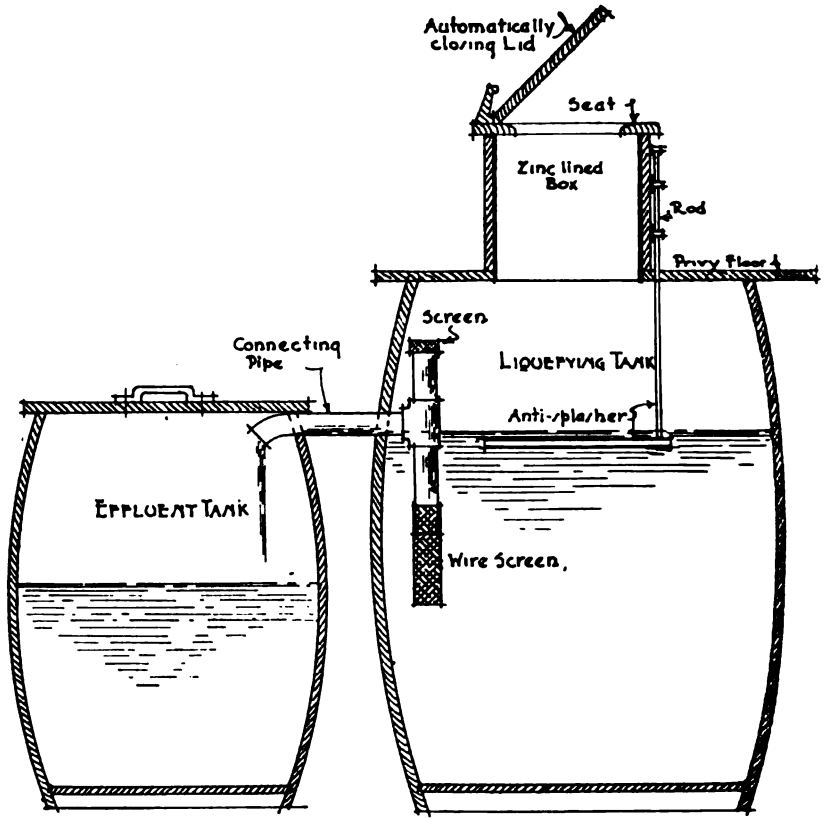
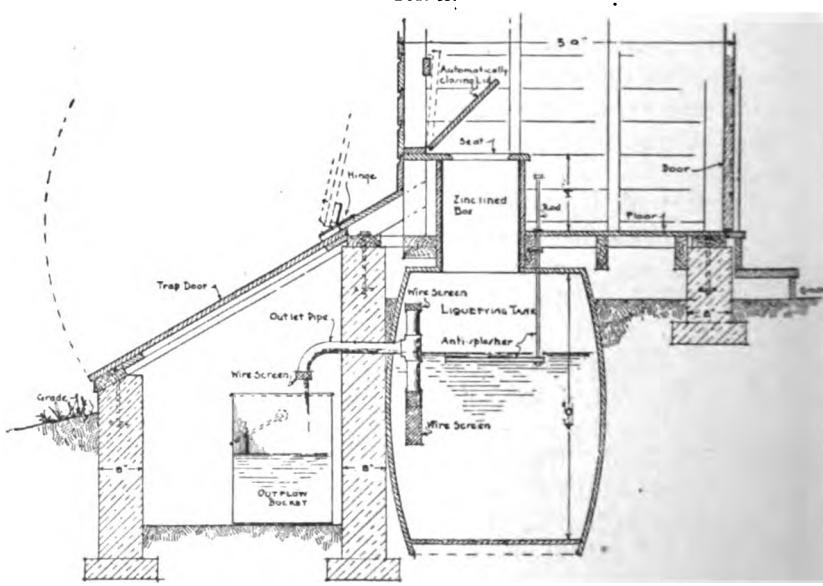


FIG. 46.



AN ADAPTATION OF THE L.R.S. PRIVY

FIG. 47.—Forms of the L. R. S. privy.

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from flies and mosquitoes; and that the labor of cleansing is slight compared with that of any of the dry-toilet systems.[1]

The success of any form of septic-tank disposal depends to a large degree on the slope of the ground carrying the drain tiles, the nature of the soil, and the extent of ground through which the drain tiles may be carried. If the ground is nearly level, the drain tiles must of necessity be placed too deep in the ground to insure rapid absorption and purification of the liquid. On sloping ground it is an easy matter to bring the tiles within 18 inches of the surface, or at most

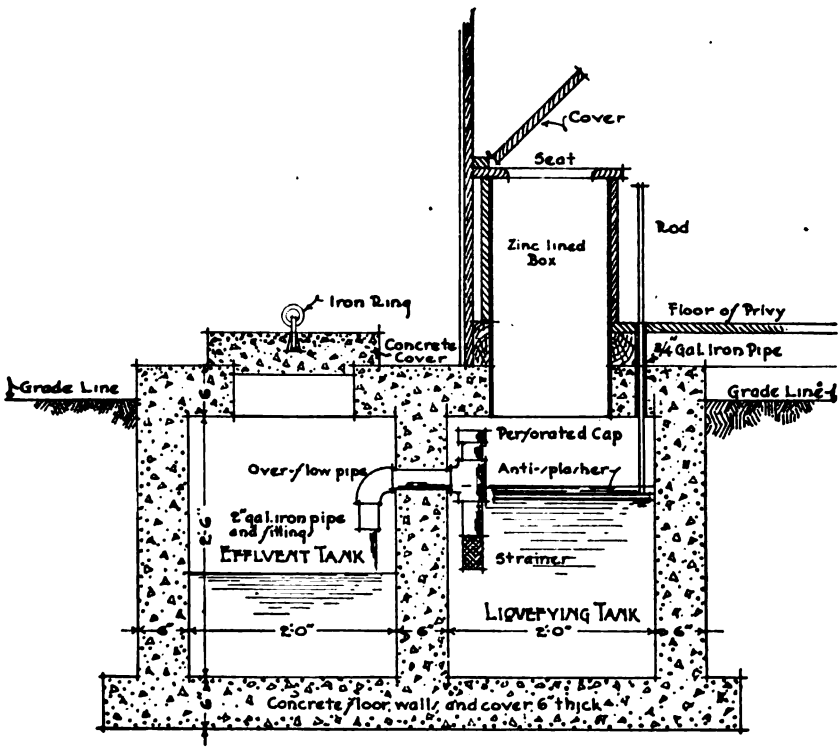

FIG. 48.—Section through concrete tanks and seat; L. R. S. method.

just below the freezing line. Thus located, the tiles discharge the liquid in reach of the active bacteria, and the absorption and evaporation of the liquid thus discharged is increased. Moreover, if a few trees or shrubs are present in the absorption field, but far enough away to prevent the rootlets from choking the tiles, the capacity of the ground to care for the outflow will in general be increased. Naturally, a wet absorption field should not be chosen, for good drainage and rapid drying are essential. The drain tiles should not be laid in ditches with too much fall, for the effluent from the tank would rush

[1] Thanks are due Dr. John A. Ferrell for the reproduction of these cuts from his bulletin on the sanitary privy, issued by the North Carolina Board of Health.

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too quickly to the lower ends of the tiles and hence overwork those parts of the absorption field. The fall should be such as to equalize as nearly as possible the demands on various parts of the absorption field.

No one can be sure that material laden with typhoid germs will be rendered inert by a septic tank of this sort, but if the absorption field

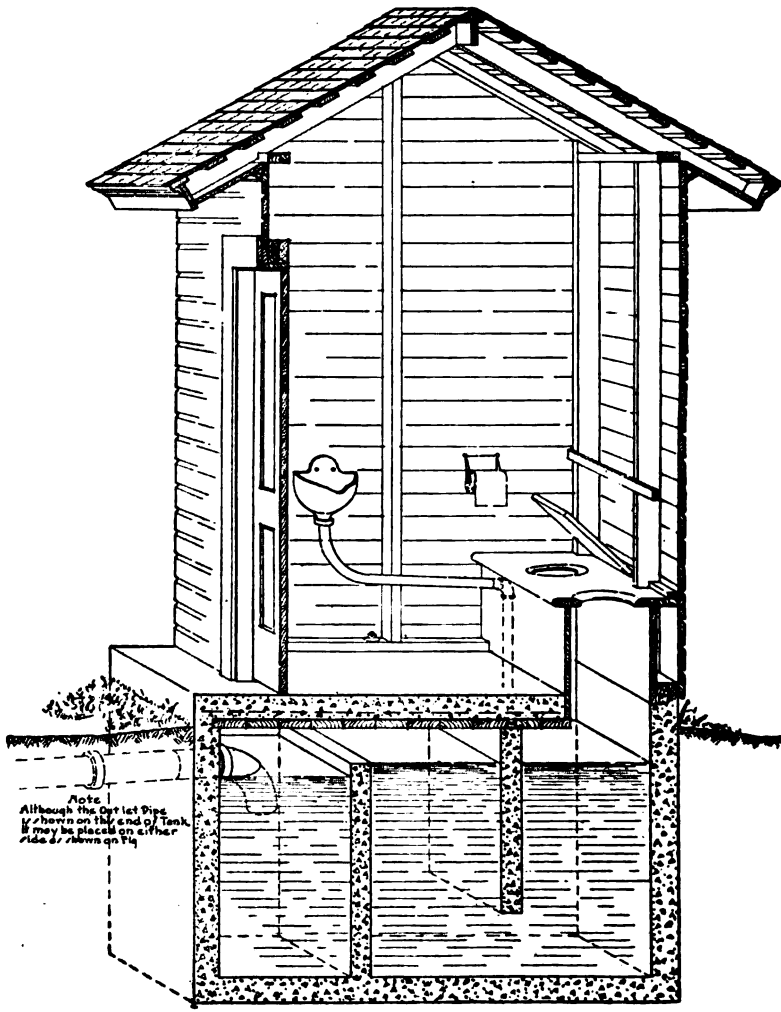

FIG. 49.—Vertical section of tank and house. Kentucky sanitary privy.

is of the right sort and is large enough and if the subdrainage is carefully guarded, it is probable that there is less chance for infection than where sewers are used which open into small streams and infect water for long distances. This statement would not hold true if

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wells were so situated as to draw into them the seepage from the absorption field described above. (See Chapter XI on water supply.)

Through the courtesy of Dr. A. T. McCormack, of Bowling Green, Ky., secretary of the State board of health of that State, the cuts

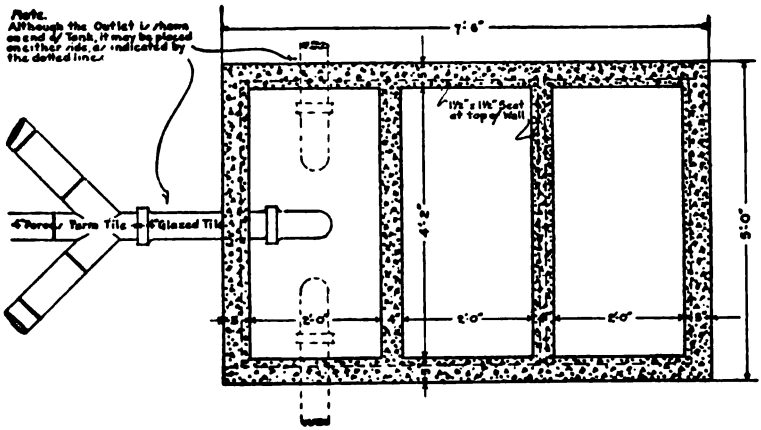

FIG. 50.—Horizontal section, Kentucky sanitary privy.

(figures 49–51) of the latest form of the Kentucky sanitary privy are reproduced, with the accompanying description and a few suggestions

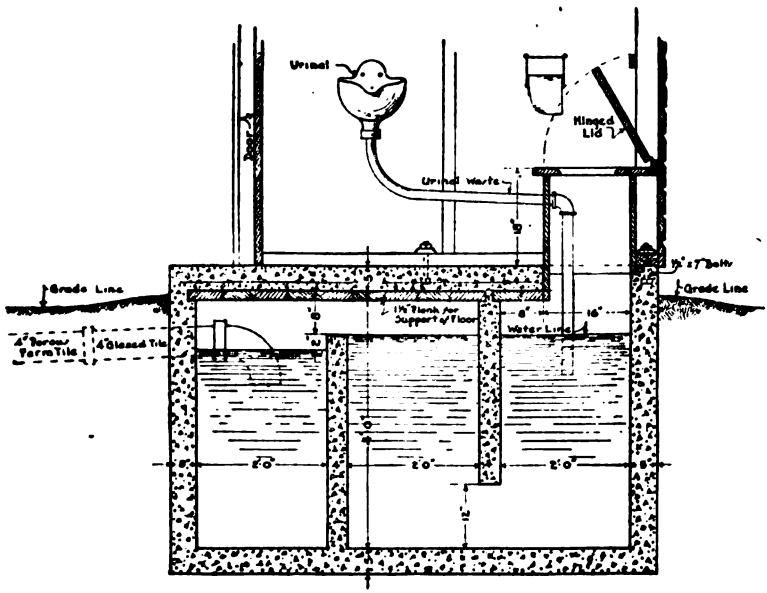

FIG. 51.—Vertical section, Kentucky sanitary privy.

regarding its construction and use. It is a pleasure to present this form of toilet, because it seems to come nearer meeting common conditions and health demands than any septic-tank disposal within the

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reach of all communities. Attention is called to the urinal here introduced. As has been said elsewhere, the chief difficulty with the ordinary seat arrangement for boys' toilets arises from the lack of urinals, and as a consequence the boys are not careful to lift the under lid, and hence are almost sure to defile the seat itself. Consequently, they will next stand on the seat, and still more serious defilement ensues. Photographs of the interior of more than a hundred country school privies exhibit these defilements as a result of the lack of proper urinal facilities. The height of the urinal needs careful study. When properly placed for the smaller boys, it is likely to be too low for older ones. A narrow bench may be used to advantage.

The other features of this toilet will be easily understood from the description which follows.

These cuts represent the self-cleaning, fly-proof, septic-tank privy which the State board of health, after three years' experimental work, recommends for country and town homes, hotels, railway stations, schools, and other places where no sewer connections are possible. The details have been worked out with extreme care, and if the directions are followed to the letter the privy may be placed within 10 feet of the house, but never inside of it. Toilets and bathrooms from the house may empty into the tank, but kitchen sinks should never do so on account of the grease.

Pit and forms.—The size and depth of the excavation for the pit or tank are clearly shown in the cuts. The earth walls, if the digging is carefully done, will make the best outside forms for the concrete except where plank are needed above the surface of the ground as a form for the top of the tank walls. The inside forms can be made by any one of ordinary skill of any lumber which can be closely fitted so as to retain the moisture, and the lumber may be used over and over again for an entire community if care is taken in putting it together with light nails for easy removal.

Concrete.—The proportions for the mixture are: 1 part of good, fresh Portland cement, 2 parts of sand, and 4 parts of gravel or finely crushed rock, with enough water to bring it to the consistency of soft batter. For the tank of the size shown in the cuts, 15 bags of cement, 1 cubic yard of sand, and 3 cubic yards of crushed rock or gravel will be required. The floor of the tank should go in as soon as the digging is done. After this has set for 24 hours the forms should be tacked together and put in place, care being taken to have no particles of trash or dust under them where the walls and floors are to join. The concrete should then be poured in, tamping constantly with a thin-edge board next to the plank forms so as to give a smooth finish to the inside walls. After the walls have set for three days the forms should be removed and the surfaces of the inside walls and floor coated over well with a mixture of cement about the consistency of thick cream, put on with a whitewash brush. The seat should then be put in place and the tank covered with 1½-inch or 2-inch lumber so as to permit concrete to join concrete over the walls and entirely around the seat. The concrete top, which is to be the floor of the privy, should be reenforced with one or two layers of galvanized iron fence wire, and finished to a smooth surface which may be easily kept clean.

Drains.—The drains of porous tile should extend in the aggregate about 100 feet, depending upon the character of the soil, should be laid below the frost line and away from the well or spring, should have a sufficient fall, should discharge entirely underground, and the surface over them should be utilized for a flower bed or rose garden, to be benefited by the constant irrigation and fertilization.

Filling and inoculating the tank.—Before the house is put in place and bolted down, the tank should be filled with water and five or six shovelfulls of old, well-rotted

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stable manure put in to inoculate the fluid with the liquefying germs upon which everything depends, a supply of toilet paper should be provided, and it is ready for use.

Aftermanagement.—A bucket of water should be poured through each hole in the seat and one through the urinal every day in order to break up the mass of fecal matter and toilet paper. The floors, and especially the urinals, should be well scrubbed daily, and care should be taken that the lids close down automatically after use.

If care is taken to make the tank water-tight, it will never need to be filled but once, and if no disinfectant of any kind is ever used except camphor balls in the urinals if the water is poured in daily as directed, and if the pipe from the urinal extends well into the water, there should be practically no odor, and in years there will be little accumulation of solid matter at the bottom of the first tank.

The accompanying cuts (figures 52, 53, and 54) of a septic-tank disposal plant designed for a washout inside toilet for a country residence or a small one-teacher country school, and its description, are reproduced through the courtesy of Prof. C. A. Haskins, engineer for the State Board of Health of Kansas:

The septic tank shown (figure 53) is constructed of concrete, but it may be built of brick or masonry just as well. If of concrete, the mixture should be 1:3:5, mixed not too wet, and well tamped into place. If the tank is built of brick, the brick should be laid in rich cement mortar, all joints well filled, and the cross wall bonded in with the side walls at every alternate course. In either case, after the mortar or concrete has had time to "set," the excess earth from the excavation should be well tamped around the sides, and the inside of the tank should be plastered with ½-inch coat of rich cement mortar. The inlet and outlet pipes and the siphon should be carefully set to the proper elevation shown on the drawing. It is important that the inlet and outlet pipes extend down below the water level to escape clogging by the scum which forms on top of the sewage. The top may be of concrete or wood, although wood is preferable on account of the fact that it may be so constructed that it may be all lifted off, affording ingress to the tank in case of stoppage. Ordinary 2 by 12 inch cypress lumber, with suitable 2 by 6 inch braces, are often used for roofs, with hinges on one side and a hasp on the other, for holding it closed. In case concrete is used for the roof, a manhole should be placed in both the tank proper and the dosing tank for ingress to the tank. In any event, the ventilating pipe should be in place as shown. The siphon is necessary to the proper working of the system, for if the sewage is allowed to trickle out into the drain tile as it comes into the tank from the house, most of it will leach out into the soil at the first few open joints, causing the ground there to become sour and foul smelling, and the full efficiency can not be obtained. With the siphon working properly, the effluent will be held in the dosing chamber until the proper elevation is reached, when it will all be rapidly discharged into the drain system.

In order that a more complete description of the method of operation of this form of siphon might be furnished than was given in the original published article (see Bulletin of the Kansas State Board of Health, No. II, November, 1913, pp. 215–219), a letter asking for this information was sent to Prof. Haskins. The following excerpt from his reply (December 17, 1913) will make its action clear:

The siphon operates in the following manner: First, the siphon is set in the dosing chamber of the tank exactly to its proper position. Then the trap is filled with water, both legs holding water level with the top of the small leg. The bell is then placed over the top of the long leg. As the water rises in the tank it reaches the bell, con-

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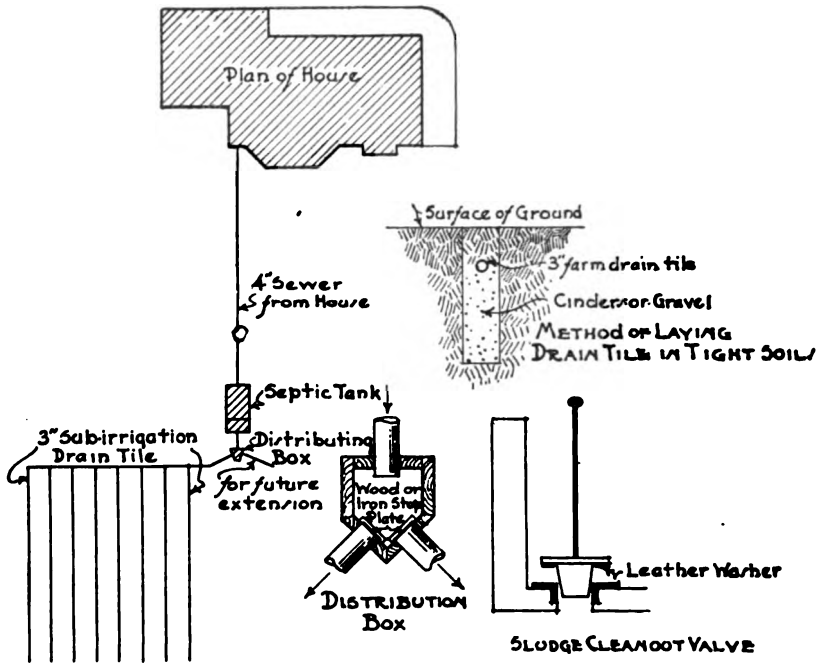

FIG. 52.

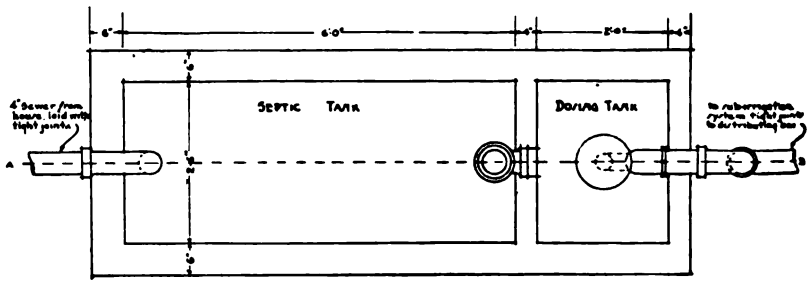

FIG. 53.

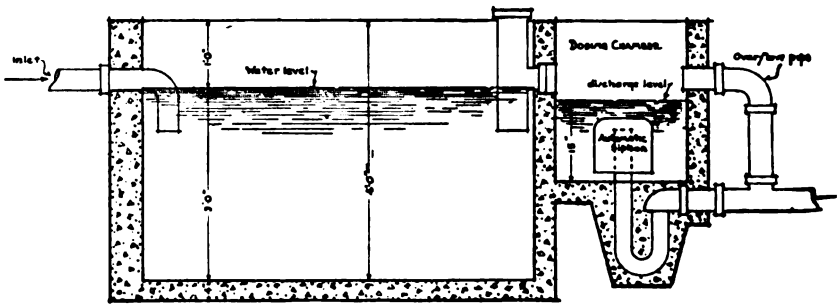

FIG. 54.
Septic tank. Sewage-disposal plant for single residences and country schools.

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fining a certain volume of air in the bell and the long leg of the trap; and as the water continues to rise, the confined air starts to push downward the column of water in the long leg to the trap toward the bend at the bottom. During the period of filling the tank the column of water in the short leg is slowly spilled out by the pressure of the air and the column of water in the long leg, so that when the predetermined discharge level in the tank is reached we have the water line (the compressed-air column being behind it) just at the flattened bend at the bottom of the trap, the water line inside the bell being near the top of the long leg. Hence a balance of water columns exists, if no further water is admitted to the tank. This equilibrium is upset if a small amount of water is added to the tank, so that the air compressed in the trap by the water expands at the bend at the bottom and finds its way into the waste-outlet tiles, while the original pressure exists in the tank. As soon as this air escapes, the water in the bell suddenly rises and the siphon is set into action, the water in the tank being drawn rapidly down and discharged. When the water reaches the bottom of the bell at the discharge, air is introduced, breaking the vacuum, and a complete circulation is established and the siphon is completely air-locked again, the trap is primed, and everything is ready for a second dose to be held back until the high-water line in the tank is again ready, and the discharge operation is repeated.

The connection from the house to the tank should be of 4-inch vitrified sewer pipe of the bell-and-spigot type. It should be laid to an even grade and alignment, and great care should be taken to see that all the joints are well filled with cement mortar, with a full bevel. This is especially important if the line passes through a grove of trees or through a swamp or low land—in the first case to prevent the entrance of fine roots, which will in time clog the pipes; and in the second case, to prevent the infiltration of ground water.

The pipes for the distribution system should be sound, hard-burned, 3-inch agricultural drain tiles, in 1-foot lengths. If necessary to reach a desirable location for the subirrigation system, the siphon may discharge into a 4-inch sewer, laid the same as the house connection, but on a grade of not less than 2 feet in 100 feet, to a diverting box or manhole, out of which the drain tile may lead in one or more lines. They should be laid at a depth of from 1 foot to 18 inches below the surface of the ground, and should be laid on a grade of 3 inches in 100 feet. This matter of grade, or "fall," should receive careful attention, since if the grade is too great the lower end of the pipe will receive more than its fair proportion of sewage, while if the grade is too small the upper end will receive too much.

The length of this 3-inch pipe should be proportioned according to the nature of the soil. If the soil is quite open and sandy, approximately 200 feet will be sufficient for the sewage from an ordinary residence, while if the soil is of a closer texture, 300 or 400 feet, or even more, will be necessary. The system is not well adapted to very tight and retentive clay soils, though it has been used successfully for a time in soils of this character. A desirable, though somewhat costly, modification that has been successfully used in tight soils consists in digging the trench about 4 feet deep, filling the lower 3 feet or so with cinders or gravel, and then laying the 3-inch distribution tiles at the surface of this porous filling material and covering them with about a foot of earth. The total length of distribution tiles deemed necessary for any particular installation may be laid in one or more single lines extending out from the dosing chamber, or a single line may be divided into two or more branches, as indicated in the drawing. In case more than a single line is used, great care should be taken to see that each line receives its fair share of the septic-tank effluent. Where the natural slope of the ground is steeper than the grade required by the distribution lines, these may be zigzagged down the hill.

It should be the expectation that once in one to four or five years the tank will require cleaning out, the frequency depending largely upon the character of the sewage.

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The sludge taken from the tank at these cleaning periods will be found to be relatively small in amount, and may be best disposed of by running it into a trench or furrow and covering it over with soil. This cleaning out should be done in the fall of the year, if possible, as at this season the sludge in the tank possesses less odor and is less objectionable to handle than at other times. The sludge clean-out valve shown in the illustration may be built for this purpose, but it is not essential, as an ordinary "pitcher" pump may be used.

It should also be expected that every few years the distribution tiles will have to be taken up and relaid in a new trench a few feet away from their former position. This is simply because there is a gradual choking up of the open spaces in the soil, with the result that the soil immediately adjacent to the pipes may become water-logged and sour.

Particularly for those States where the rainfall is such that the water of the sewage, as well as its fertilizing constituents, has an appreciable value, the disposal schemes outlined above may have a considerable economic as well as important sanitary value. It is quite possible by this method to maintain in the driest region a large, well-fertilized and well-watered lawn. The process should be carried on entirely without odor, though, of course, the septic tank should be located at some little distance from the house—say 100 feet or more—if possible. Especially, the disposal plant should not be near any open well which is used as a source of water supply.

This plant is automatic in operation, but, nevertheless, will require some care. It should be carefully inspected occasionally to see that the pipes are not stopped up, that the tank itself is not completely sludged up, and that the siphon is working properly. However, if the plant is carefully built, according to the drawing and the directions included herein, it should give good general satisfaction.

Recently a chemical toilet has been developed which is designed for indoor use where flushing toilets can not be introduced on account of the lack of water supply or of sewage disposal. The closet is constructed, as will be seen by the illustrations (Pls. 41 A–B) of a steel cabinet finished to resemble wood. This incloses a galvanized container with a lid and the necessary handles for removing it and carrying it away. The toilet is prepared for use by introducing into it a chemical which is claimed to be "a powerful germicide, deodorant, and disinfectant." A circulation of air and an exhaust are provided, so that no odors escape. Such a toilet as this, if really practicable, may be introduced into a special room in a country schoolhouse and the excreta may be carried away and deposited where no danger of odors or infection is posssible. This device has perhaps not yet been tested for a sufficient length of time to warrant the statement that it will satisfy all sanitary conditions, but it is worthy of careful consideration.

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APPENDIX.

A HEALTH PROGRAM FOR COUNTRY CHILDREN.

In their efforts to improve hygienic conditions in the schools and in the community, teachers frequently find some assistance in a simply worded health program or creed for the individual child to apply to his own experience. The following is not intended as a final or exhaustive statement of such a program, but it is believed that by means of it the rural teacher may be able to drive home certain fundamentals in hygiene and sanitation that will ultimately mean much for good health in home, school, and community and make a direct contribution to the movement for better schoolhouses in the country. It is assumed that the teacher will select such of these items as seem most useful for her purpose and supplement them with illustrative examples from real life.

LEST I FORGET.

I believe that good health and a strong body are essential, and that the only real wealth is good health. In order that I may be strong and well, therefore, I will endeavor to observe the following rules of health:

1. I will keep my teeth clean by using my toothbrush every day.
2. I will drink no coffee or tea before I am 20 years of age, and no sort of alcoholic stimulants at any time in my life, unless ordered to do so by a physician.
3. I will chew my food thoroughly.
4. I will sleep at least nine hours each night in well-ventilated rooms winter and summer, or in an open-air sleeping porch.
5. I will bathe my whole body at least once a week and keep my face, hands, and nails clean.
6. I will strive daily to acquire a habit of self-control, habits of anger being not only wrong but unhealthful.
7. I will strive to help make my home as clean and sanitary as possible, especially to prevent contamination of the milk and drinking water.
8. I will do all I can to prevent the development of flies about the house in which I live, since they carry the germs of typhoid fever and other diseases.
9. I will do all in my power to prevent mosquitoes from breeding in or about the house I live in. I will bury or destroy all old tin cans, barrels, or other vessels which catch and hold rainwater and offer a place for mosquitoes to breed. I will help to drain all stagnant pools near my home or put kerosene oil on them once every 10 days during summer.
10. I will try hard to kill all rats and mice about my home, since they are both troublesome and dangerous, carrying, among other things, the bubonic plague, one of the most deadly of all diseases.
11. I will do all in my power to help secure sanitary toilets throughout the whole neighborhood.

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12. I will strive to keep the backyard of my house as clean and tidy as a front yard should be kept.

13. I will take no patent medicine, and will do all I can to teach people that most of it is both useless and harmful.

14. I will keep my personal life clean and pure, for it is a duty I owe to myself and to all who live now and may live in the future.

15. I will take good care of my eyes, taking special pains not to strain them by reading at night or in bad light.

16. I will be careful about spitting, since disease is often spread in that way.

17. I will do all I can to help make our schoolhouse more attractive and to keep it clean and neat at all times.

18. I believe the best investment I can make for myself and my family is to invest in good health, a good education, and a clean moral life.

19. I will strive with all my power to make country life more healthful, more enjoyable, and more beautiful. I believe life in the country is finer and better than life in any city.

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THE CROSS ROADS SCHOOL, MACON COUNTY, ILL.

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A. MANUAL TRAINING UNDER DIFFICULTIES.

B. FOREST SCHOOL STUDENTS AT WORK IN THE LATH HOUSE IN THE RAJA YOGI SCHOOL, POINT LOMA, CAL.

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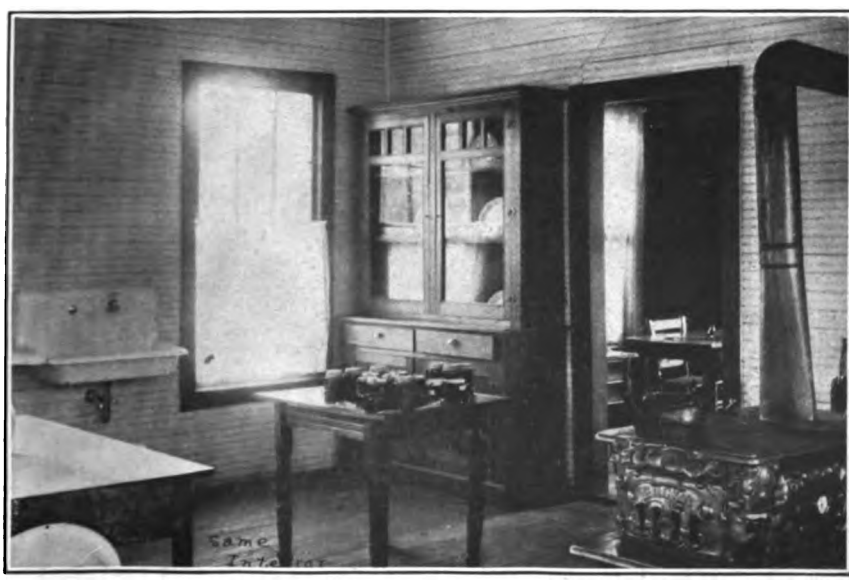
A. CORNER OF KITCHEN, RURAL SCHOOL IN LOUISIANA.



B. DOMESTIC SCIENCE, RURAL SCHOOL IN LOUISIANA.

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A. NEGRO SCHOOL, CAROLINE COUNTY, VA. A PRIZE GARDEN.

B. SEWING. INDUSTRIAL WORK IN VIRGINIA COLORED SCHOOLS.

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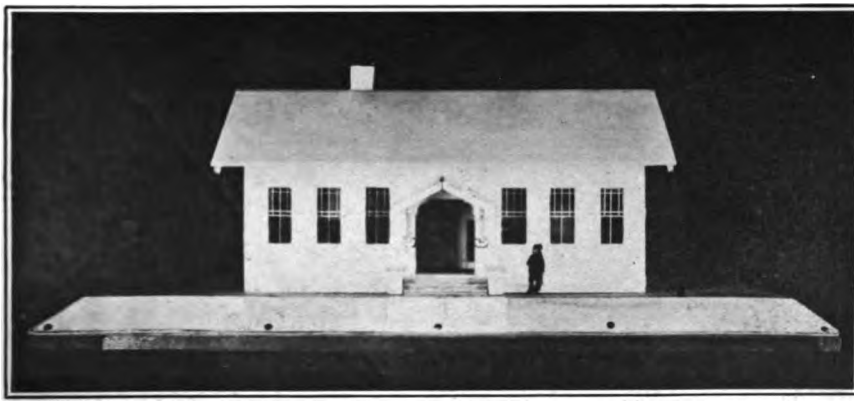
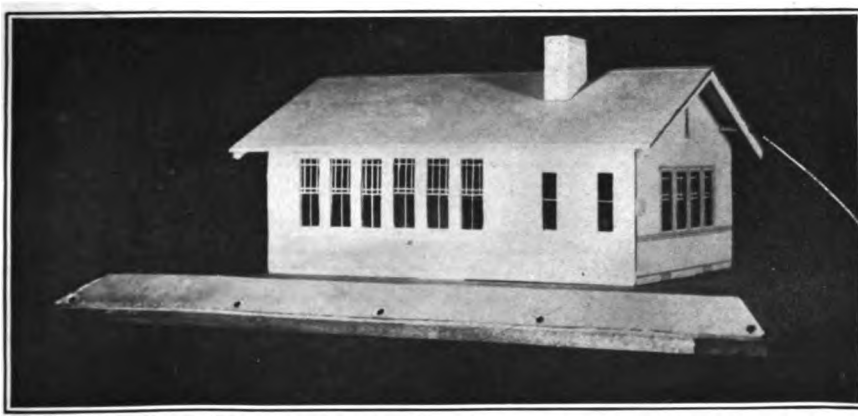
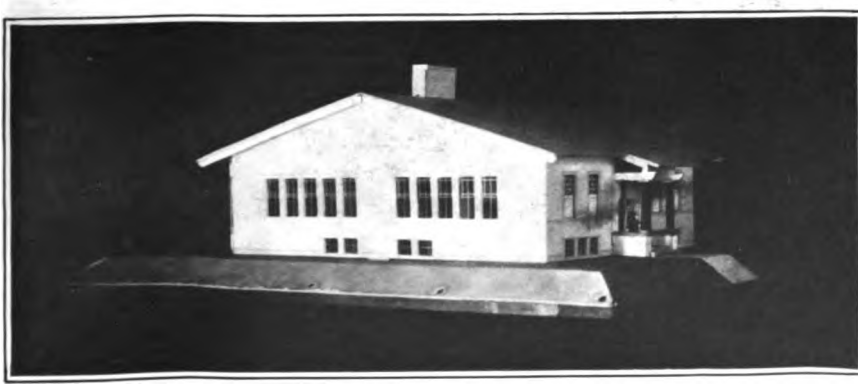


A. FRONT VIEW, MODEL 1.



B. REAR VIEW, MODEL 1.



C. FRONT AND SIDE VIEW, MODEL 5.

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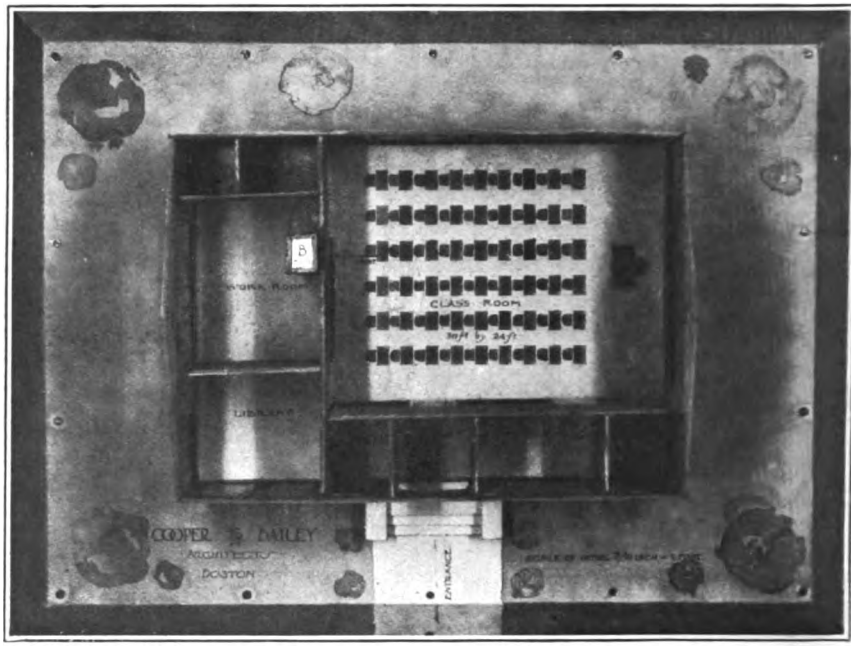
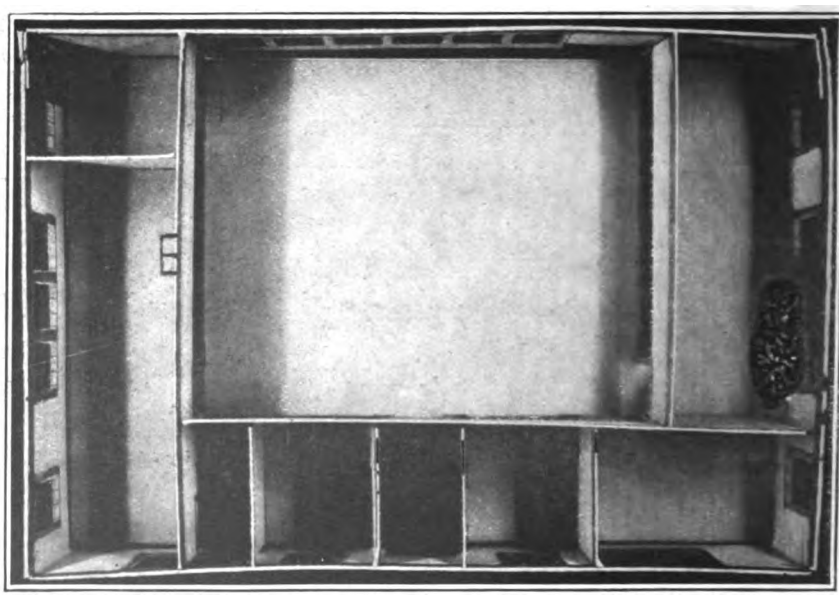


A. INTERIOR VIEW OF MODEL 1.



B. INTERIOR VIEW, MODEL 2.

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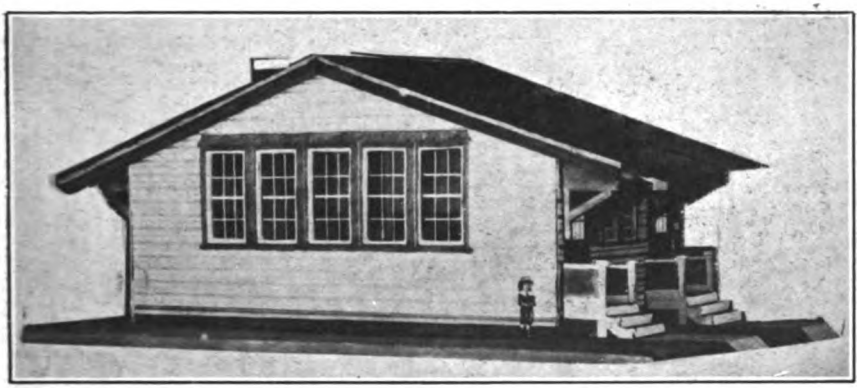
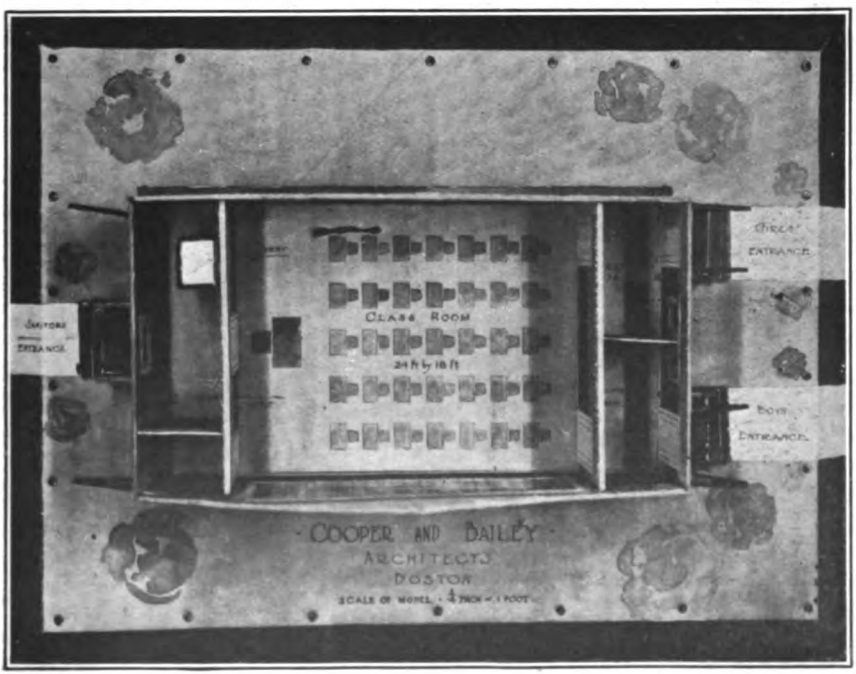


A. SIDE VIEW OF MODEL 3.



B. INTERIOR VIEW OF MODEL 3.

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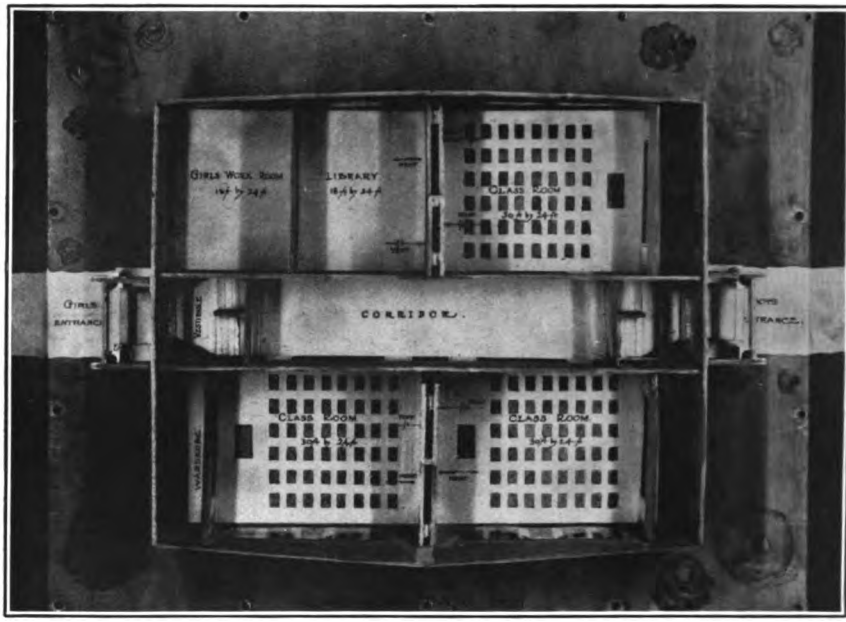
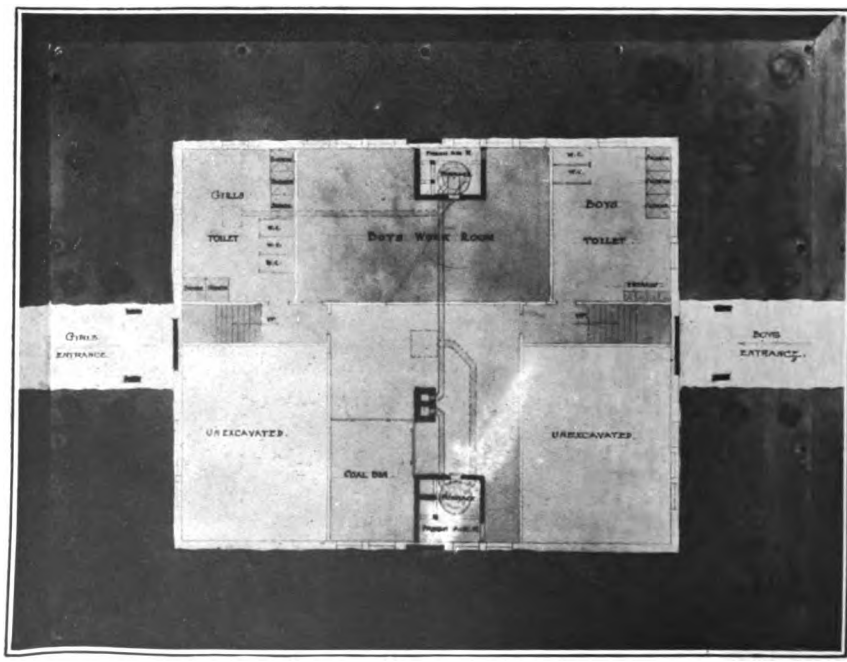


A. INTERIOR VIEW, MODEL 5.



B. BASEMENT PLAN, MODEL 5.

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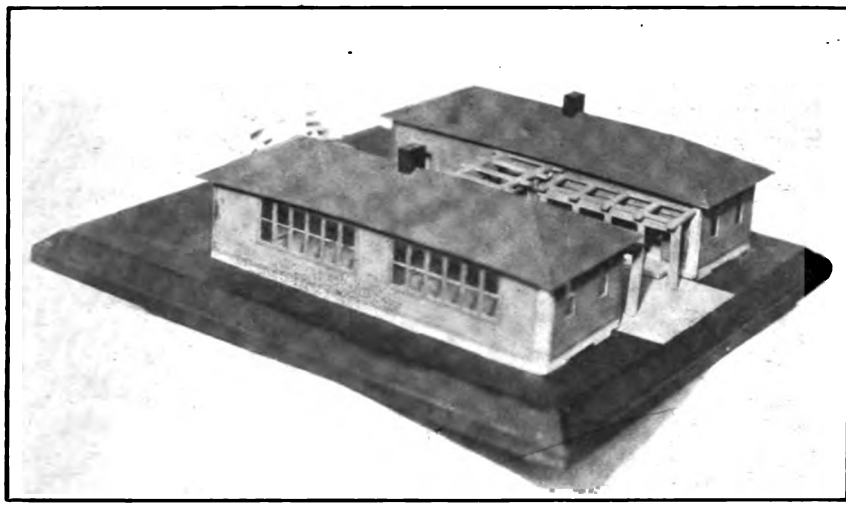
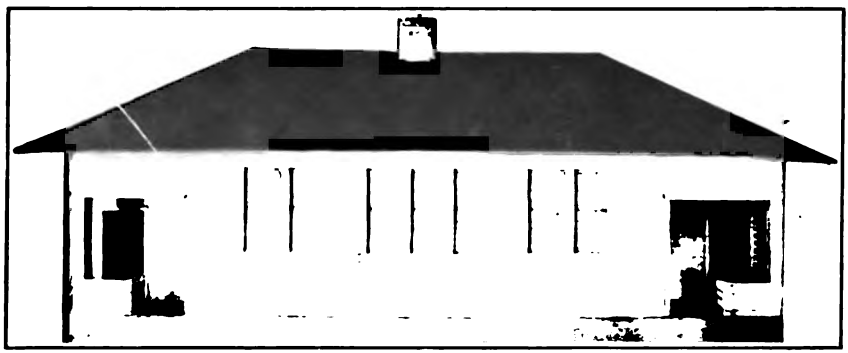
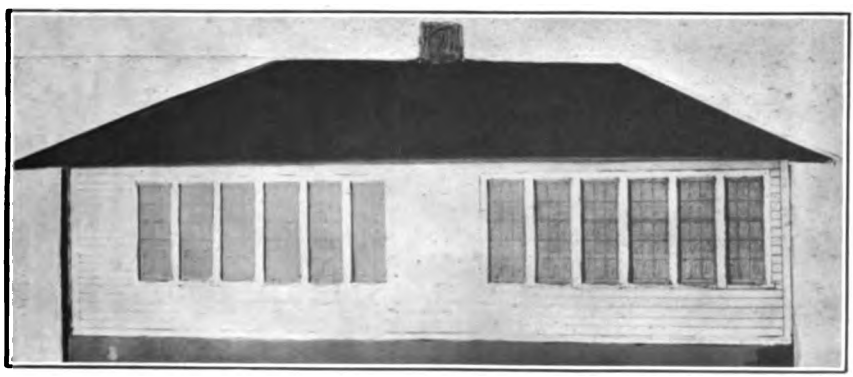


A. MODEL 6.



B. FRONT VIEW, MODEL 4.



C. GROUPING OF WINDOWS, MODEL 4.

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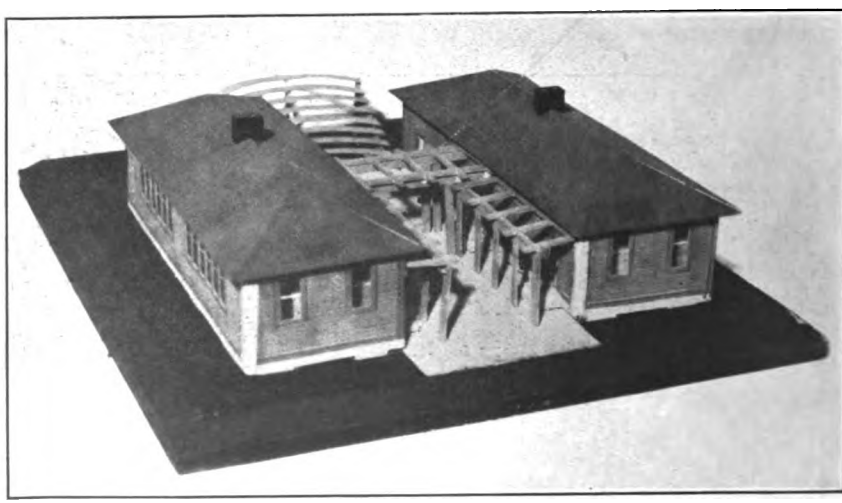

PERGOLA AND OPEN-AIR THEATER, MODEL 6.

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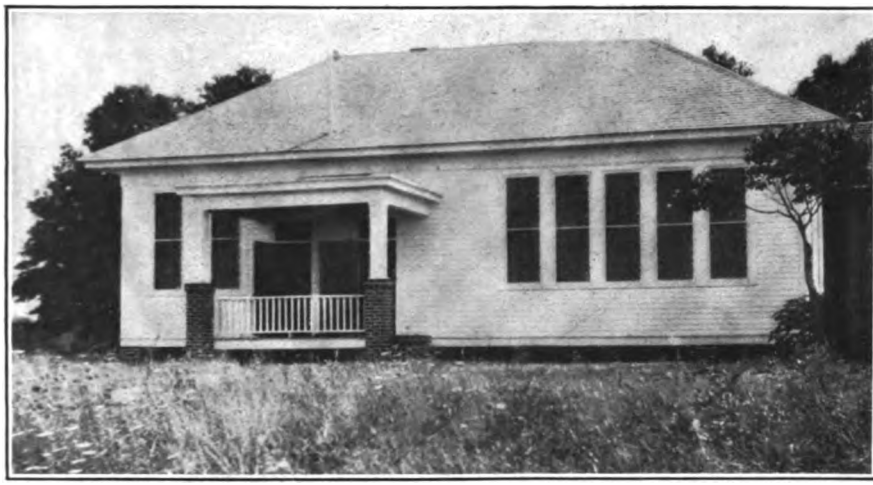

A. A SOUTH CAROLINA RURAL SCHOOL.

B. BLACKBERRY-HOLMBERG SCHOOL, DISTRICT NO. 1, ITASCA COUNTY, MINN.

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A.

B.

C.

VIEWS OF RURAL SCHOOL AT COCOANUT GROVE, FLA.

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A. MASONVILLE DISTRICT NO. 13, YAMHILL COUNTY, OREG.

B. HIGH HILL SCHOOL, DARLINGTON COUNTY, S. C.

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A. RURAL SCHOOL AT MARBURY, ALA.

B. COMET SCHOOL, ISLE OF WIGHT COUNTY, VA.

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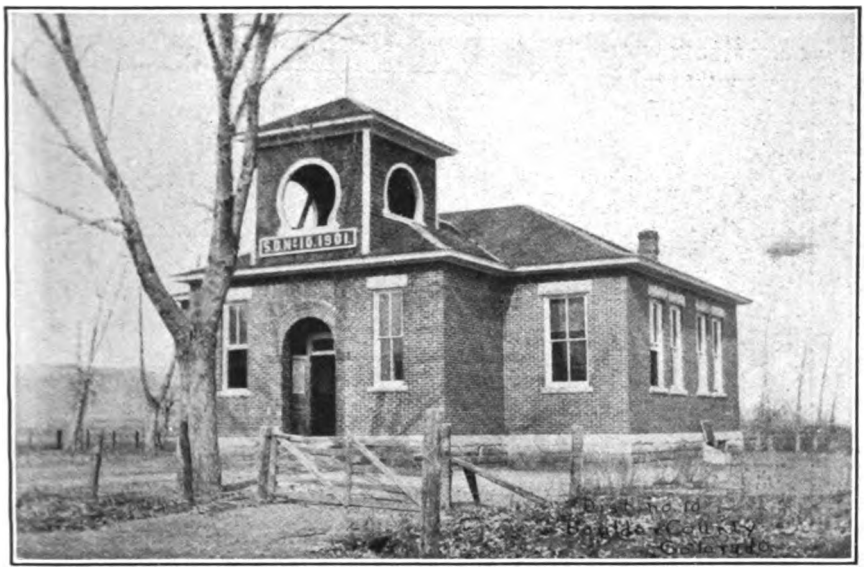

A. DISTRICT NO. 10. BOULDER COUNTY, COLO.

B. LOGANSPORT, W. VA.

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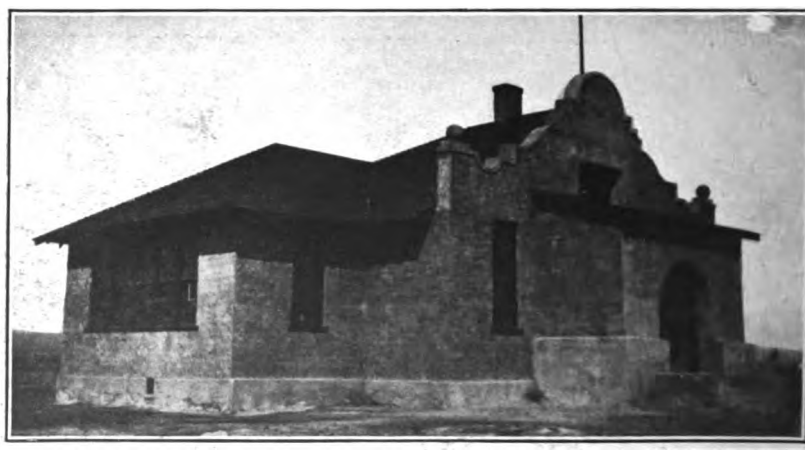
A. DISTRICT NO. 28, MOWER COUNTY, MINN.



B. LOS PADILLAS, BERNALILLO COUNTY, N. MEX.

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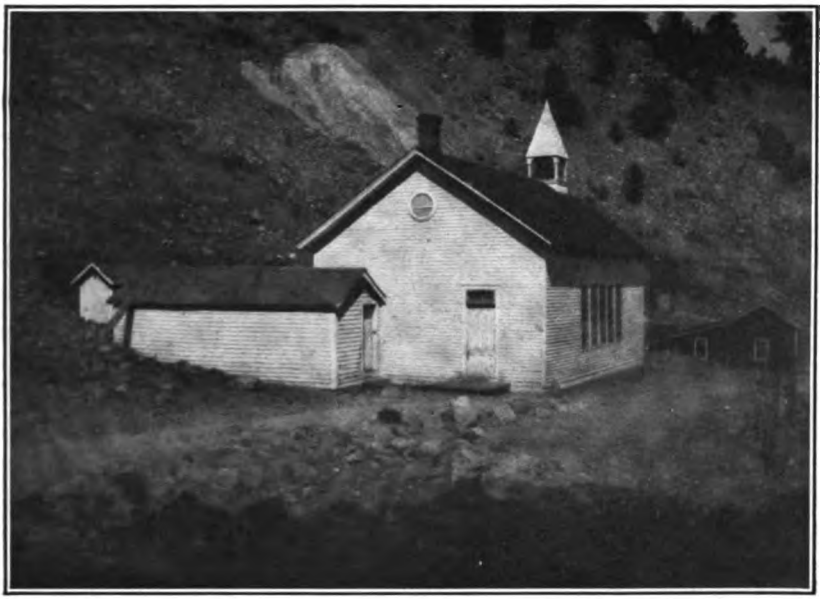

A. DISTRICT NO. 31, BOULDER COUNTY, COLO.

B. POTTER COUNTY, PA.

The ever-present cupola, which the new rural school is avoiding.

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A. A RURAL SCHOOLHOUSE ON THE PLAINS, DISTRICT NO. 23, CUSTER COUNTY, MONT.

B. LACK OF SIMPLICITY MARS THE EFFECT OF AN OTHERWISE ATTRACTIVE BUILDING.

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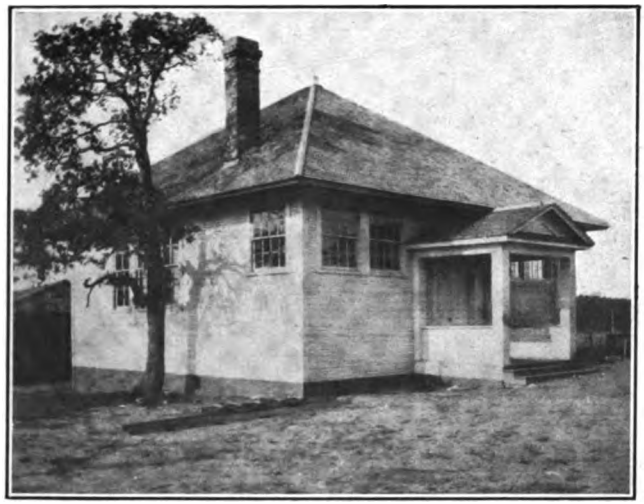

A. MODEL RURAL SCHOOL, CORYELL COUNTY, TEX.

B. THE NEW WILLOW DISTRICT SCHOOL, MENDOCINO COUNTY, CAL. BUILT IN 1911.

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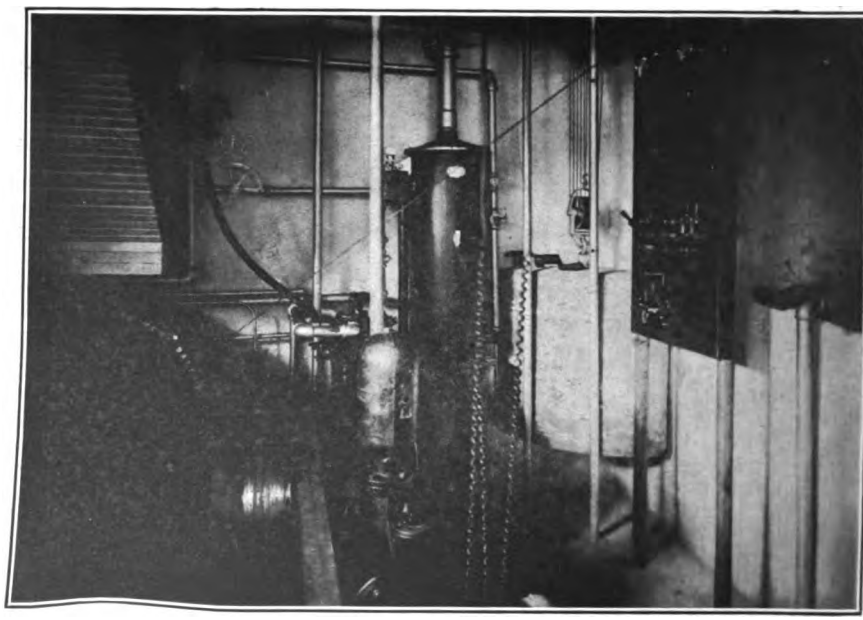
A. MODEL RURAL SCHOOL, KIRKSVILLE, MO.



B. MACHINERY IN BASEMENT OF MODEL RURAL SCHOOL, KIRKSVILLE, MO.

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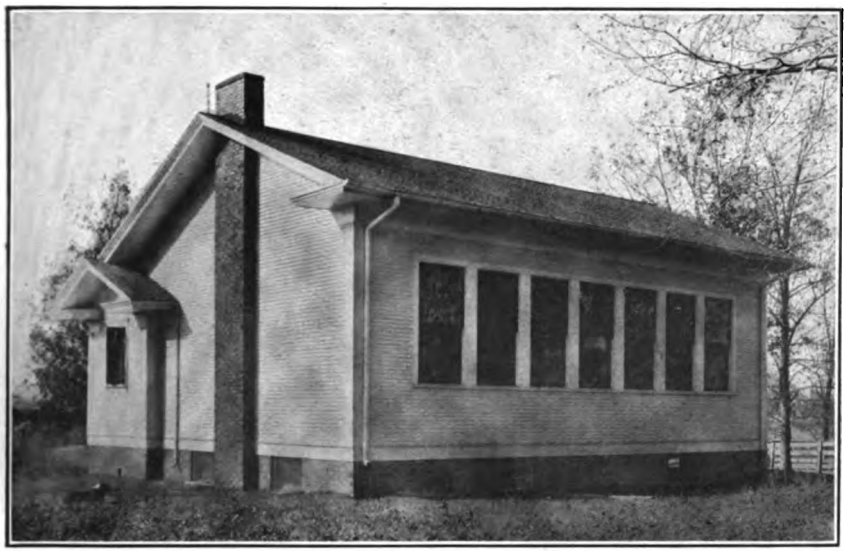
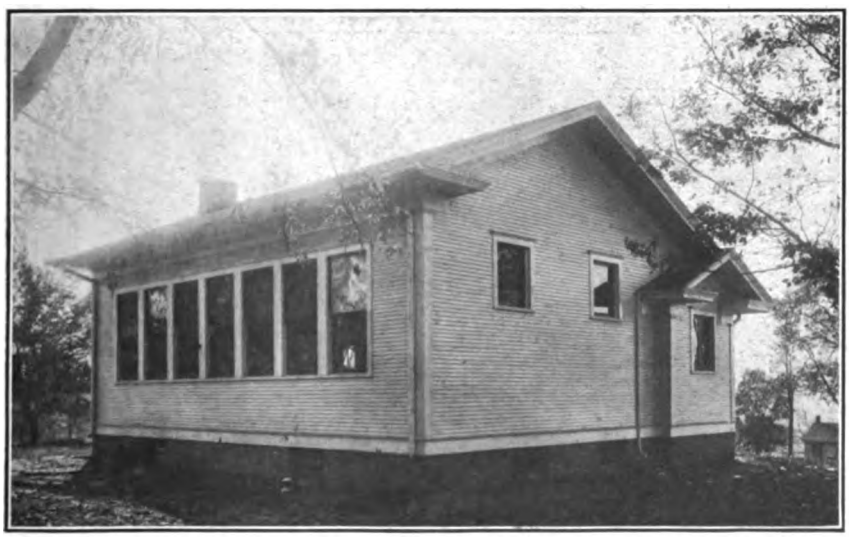


A. REAR VIEW (SEE ALSO PLATE 1).



B. SIDE AND REAR, CROSS ROADS SCHOOL, MACON COUNTY, ILL.

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A. CLASSROOM, SHOWING LIGHTING, CROSS ROADS SCHOOL.

B. FRONT OF CLASSROOM, CROSS ROADS SCHOOL.

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A. LOOKING INTO LIBRARY AND CLOAK ROOMS, CROSS ROADS SCHOOL.

B. SEATING ARRANGEMENT, CROSS ROADS SCHOOL.

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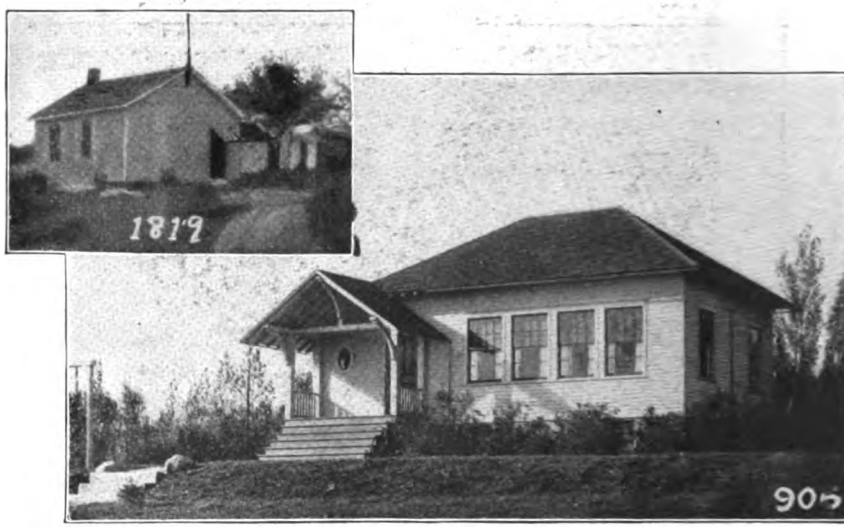

A. "THE OLD AND THE NEW." DISTRICT NO. 9, CANANDAIGUA, N. Y.

B. CLASSROOM IN CANANDAIGUA SCHOOL.

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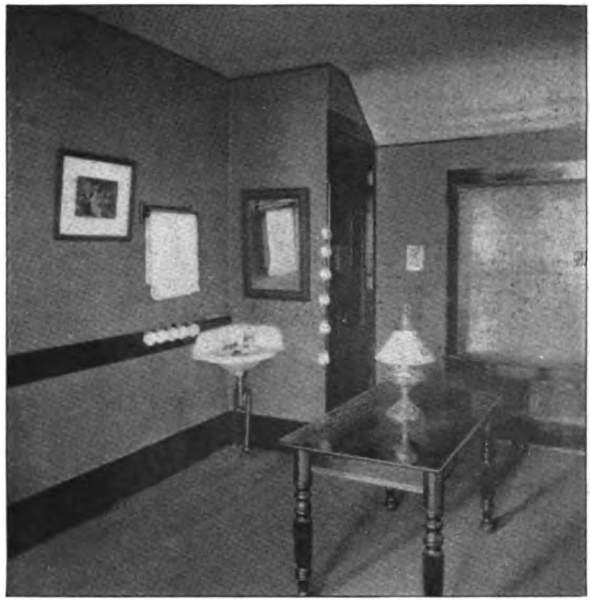

A. CORNER OF THE HALL, NO. 9, CANANDAIGUA, N. Y.

B. LIBRARY, WITH FIREPLACE, NO. 9, CANANDAIGUA, N. Y.

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A. A RURAL SCHOOL PLAYGROUND.

B. WINDOWS AND LIGHTING, AUDUBON OPEN-AIR SCHOOL, LOUISVILLE, KY

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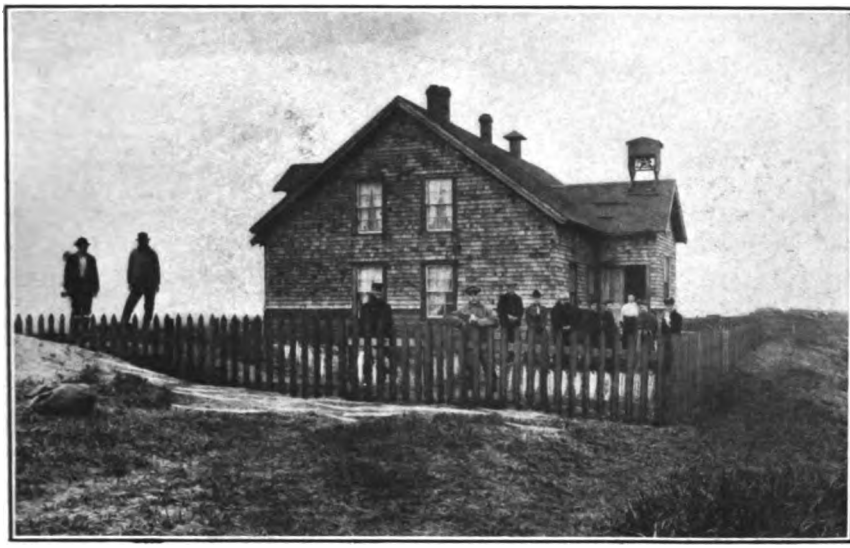
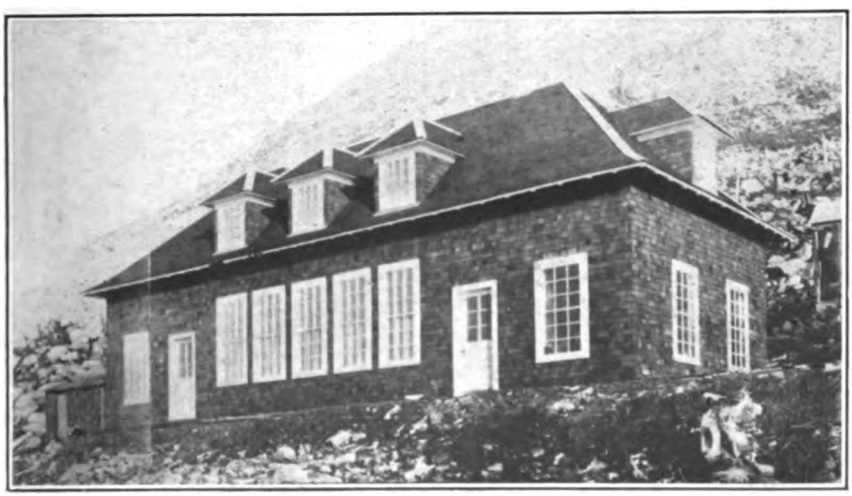


A. UNITED STATES SCHOOL, ARCTIC ALASKA.



B. UNITED STATES GOVERNMENT SCHOOL ON LITTLE DIOMEDE ISLAND, ALASKA.

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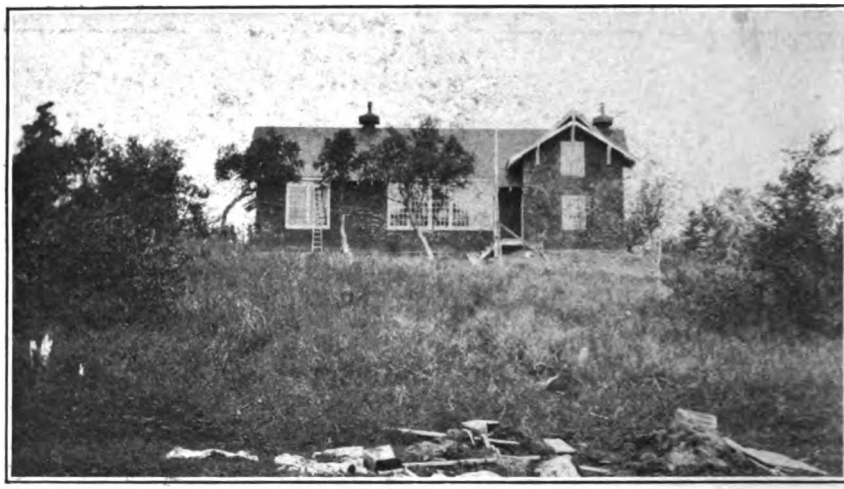
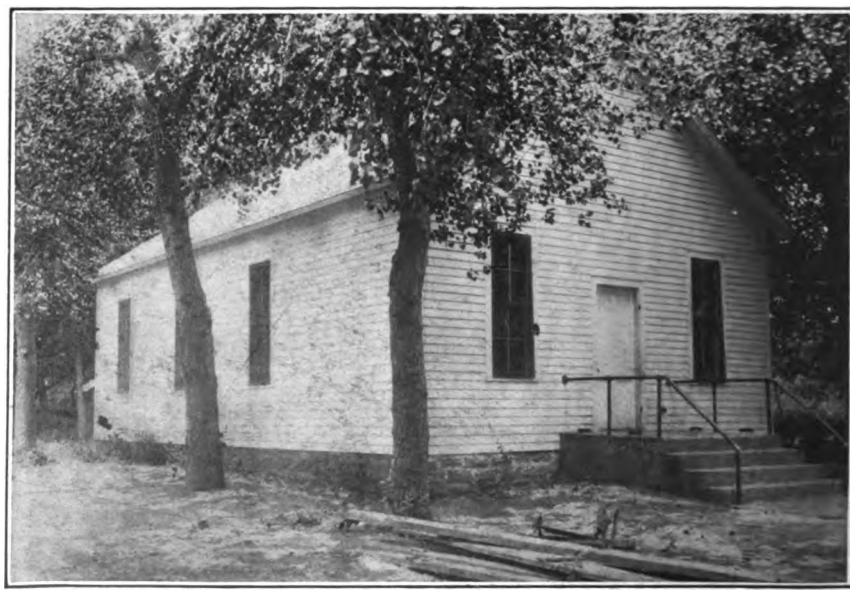


A. SCHOOL AT CHOGIUNG, WESTERN ALASKA.



B. A FORMER ONE-ROOM SCHOOL IN MINNESOTA THAT BECAME A TEACHER'S COTTAGE.

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A. PORTER SCHOOL, MAY 1, 1913. AN OLD BUILDING RENOVATED.

B. PRIVY AT PORTER SCHOOL IN AUGUST, 1912. LATER REPAIRED.

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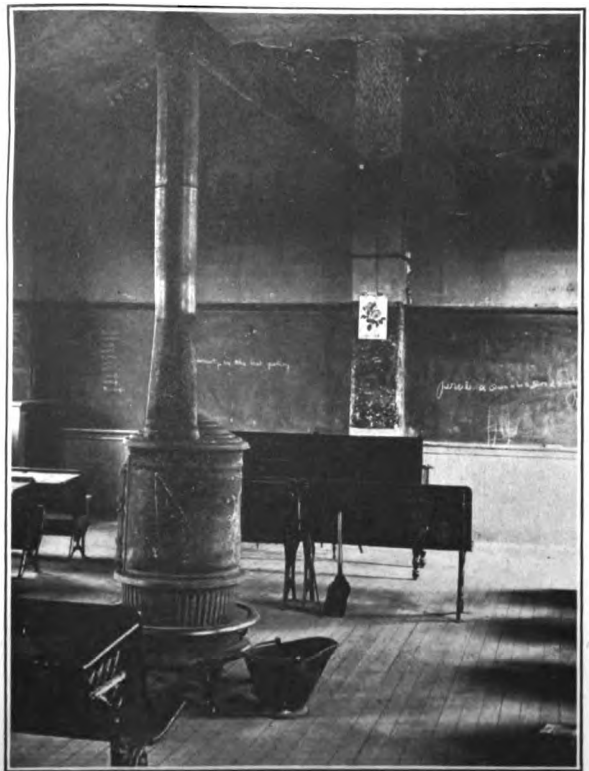
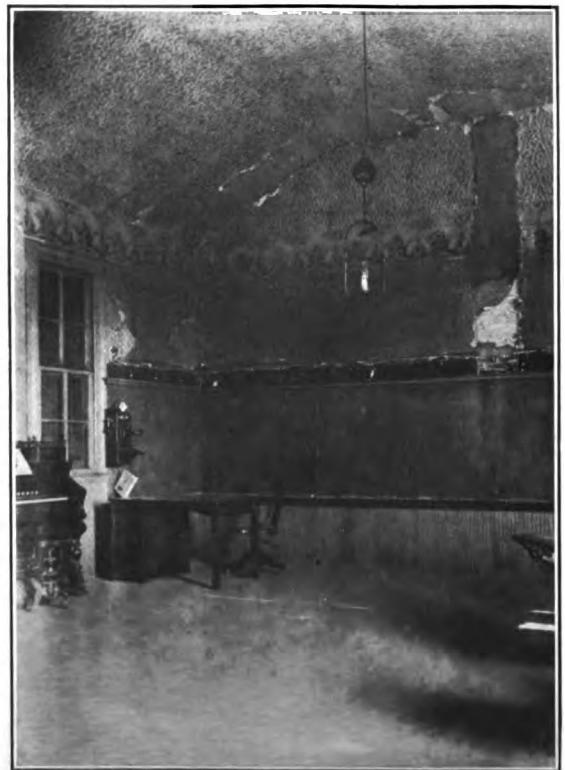


A. IN AUGUST, 1912, BEFORE REMODELING BEGAN. PORTER SCHOOL.



B. HOW THE EAST WALL LOOKED DECEMBER 6, 1912. REPAIRS BEGUN.

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A. SOUTH WALL OF PORTER SCHOOL ON FEBRUARY 20, 1913, SHOWING HOW CROSS LIGHTS ARE AVOIDED.

B. ANOTHER INTERIOR VIEW OF THE REMODELED SCHOOL, MAY 1, 1913.

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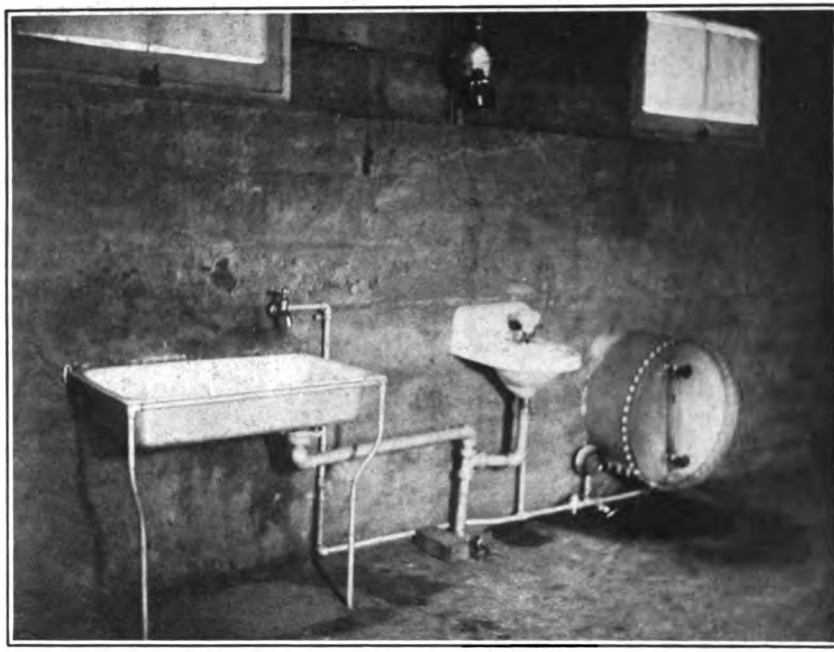
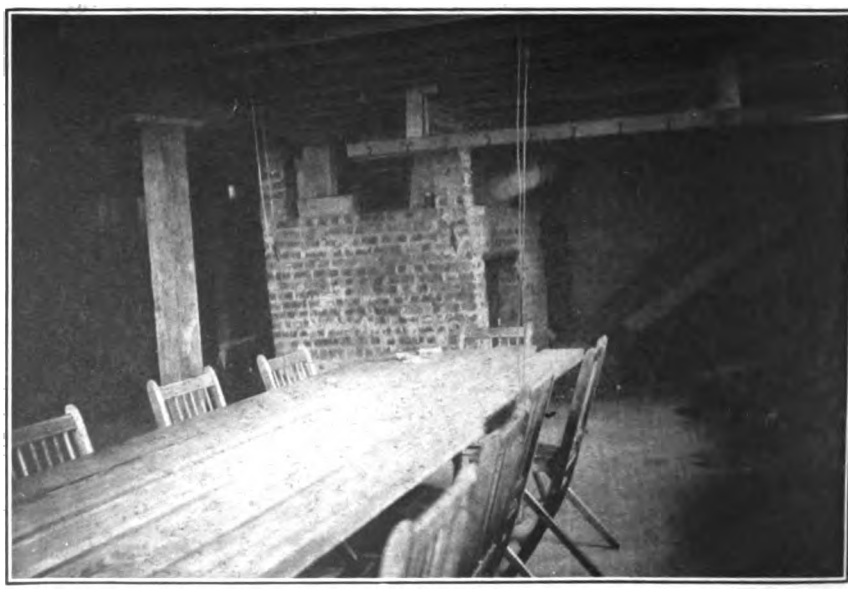


A. SOUTH SIDE OF BASEMENT, SHOWING IMPROVEMENTS. FEBRUARY 20, 1913.



B. THE MODERNIZED BASEMENT OF PORTER SCHOOL.

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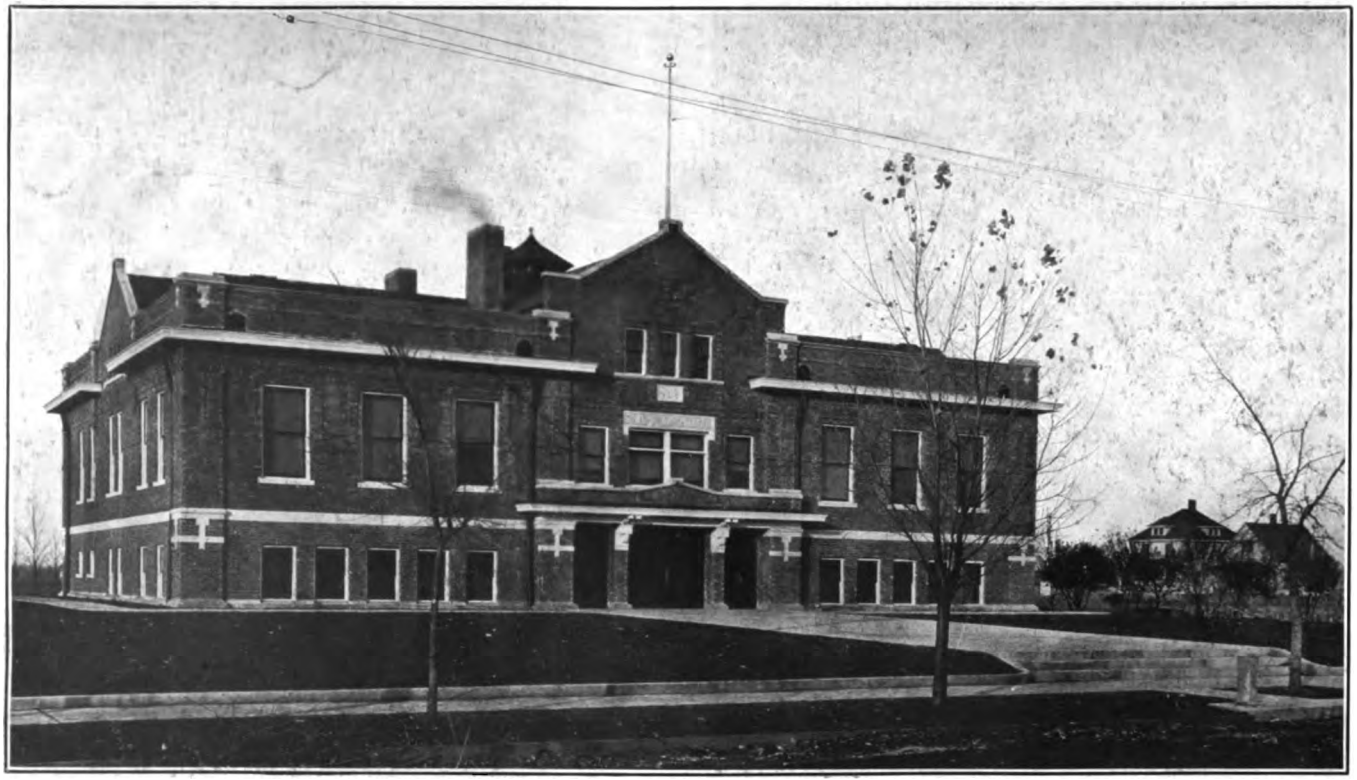

SILAS WILLARD SCHOOL, GALESBURG, ILL.

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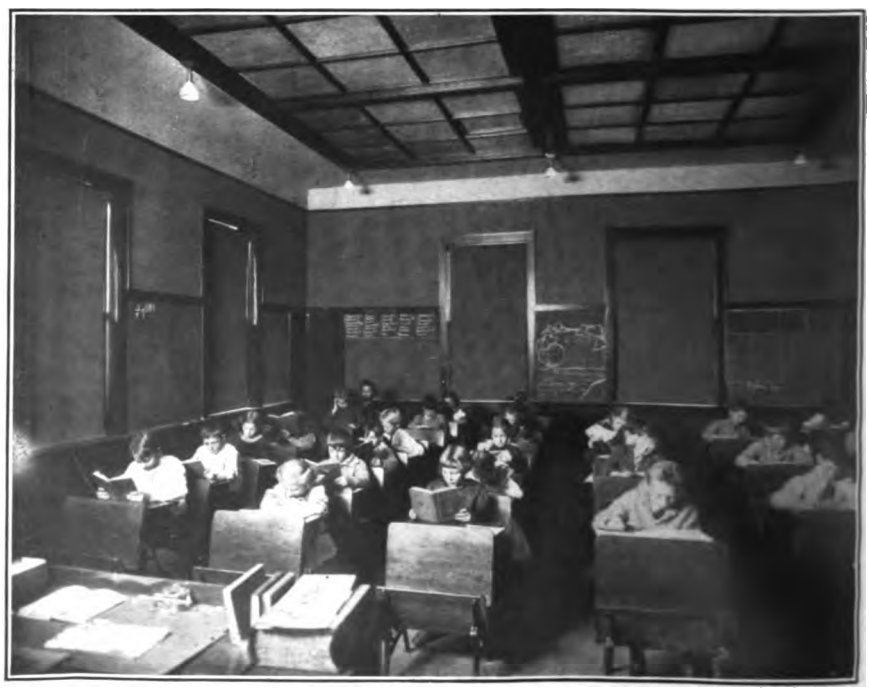
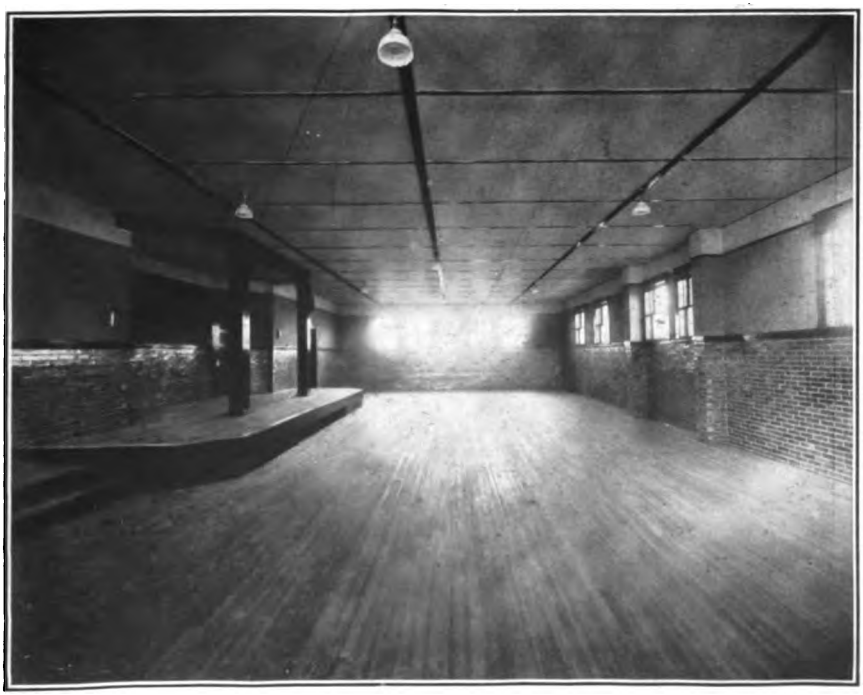
A. CLASSROOM, SILAS WILLARD SCHOOL, GALESBURG, ILL.



B. CLASSROOM, SILAS WILLARD SCHOOL, GALESBURG, ILL

Digitized by Google

A. CORRIDOR, SILAS WILLARD SCHOOL, GALESBURG, ILL.



B. AUDITORIUM AND GYMNASIUM (IN BASEMENT), SILAS WILLARD SCHOOL, GALESBURG, ILL.

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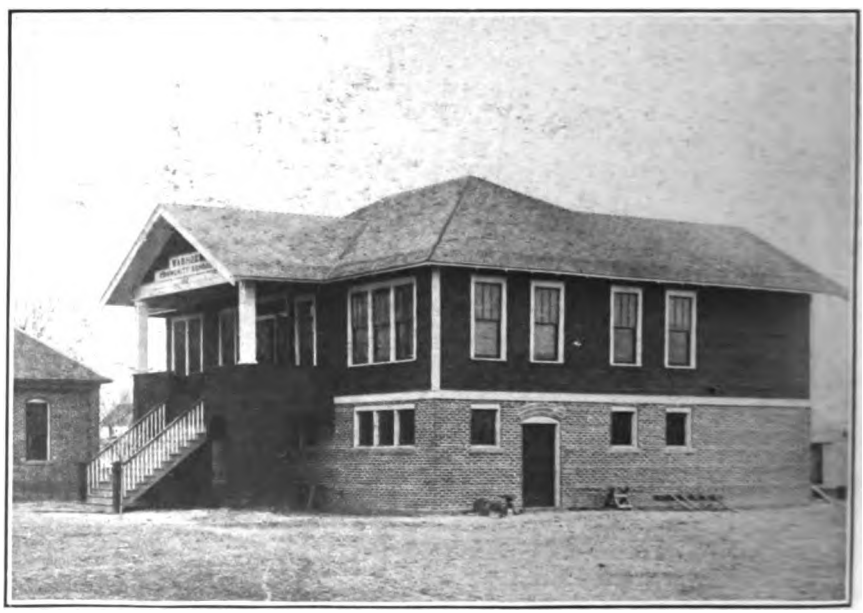
A. CACHE LA POUDRE CONSOLIDATED SCHOOL, COLORADO.



B. WASHOE COMMUNITY SCHOOL, PAYETTE, IDAHO.

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TEACHER'S COTTAGE, RICHLAND COUNTY, S. C.

SCHOOLBOYS IN WASHINGTON STATE TRANSFORMING AN OLD SCHOOLHOUSE INTO A MODERN COTTAGE FOR THE TEACHER.

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A. TEACHER'S COTTAGE, PORTER SCHOOL, ADAIR COUNTY, MO.

B. TEACHER'S RESIDENCE, MILL CREEK SCHOOL, RICHLAND COUNTY, S. C.

Digitized by Google

A. WASHINGTON RURAL SCHOOL; TEACHER'S COTTAGE IN CENTER.

B. COTTAGE FOR TEACHER; RURAL SCHOOL IN WASHINGTON STATE.

Courtesy of Mrs. Josephine Preston, State Superintendent.

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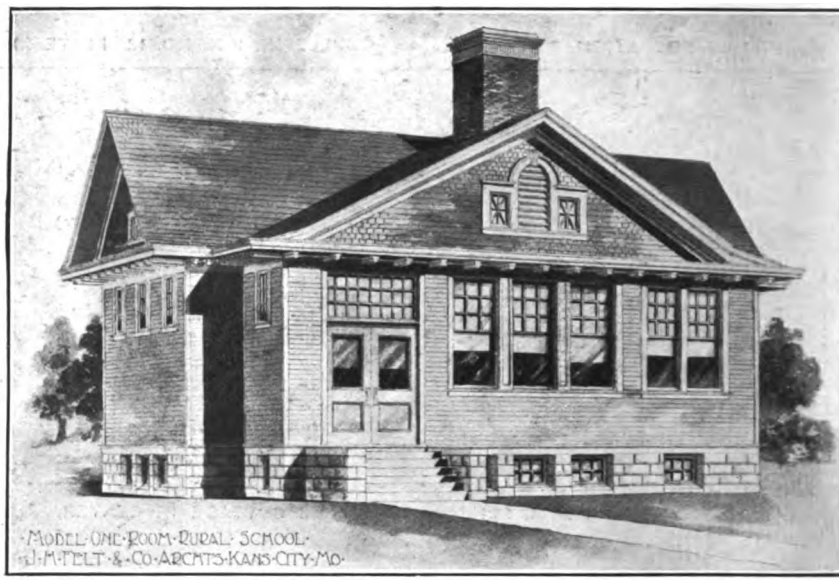

A. MODEL RURAL SCHOOL. J. H. FELT & CO., ARCHITECTS, KANSAS CITY, MO.

B. CLIMAX HIGH SCHOOL, PITTSYLVANIA COUNTY, VA.

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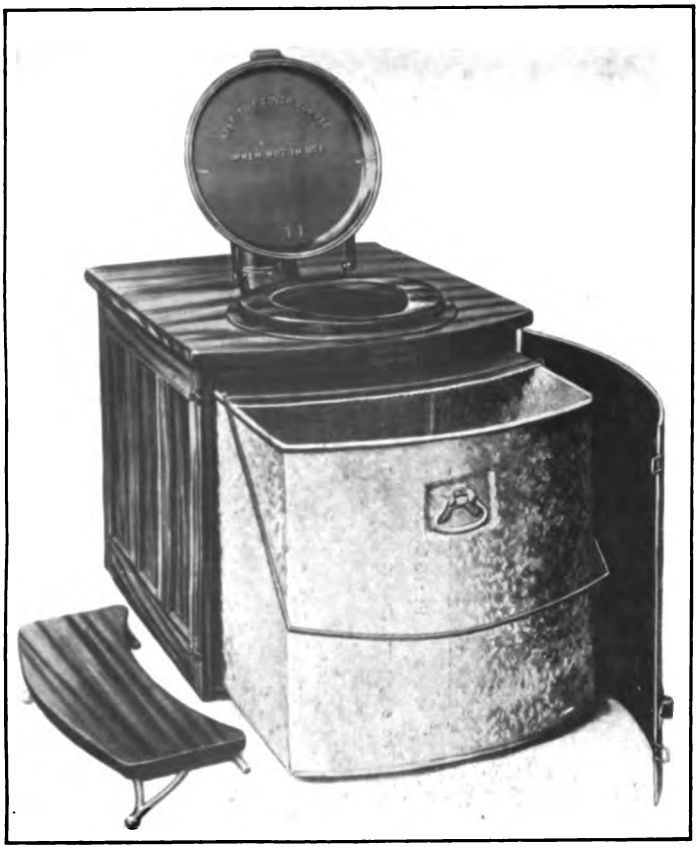

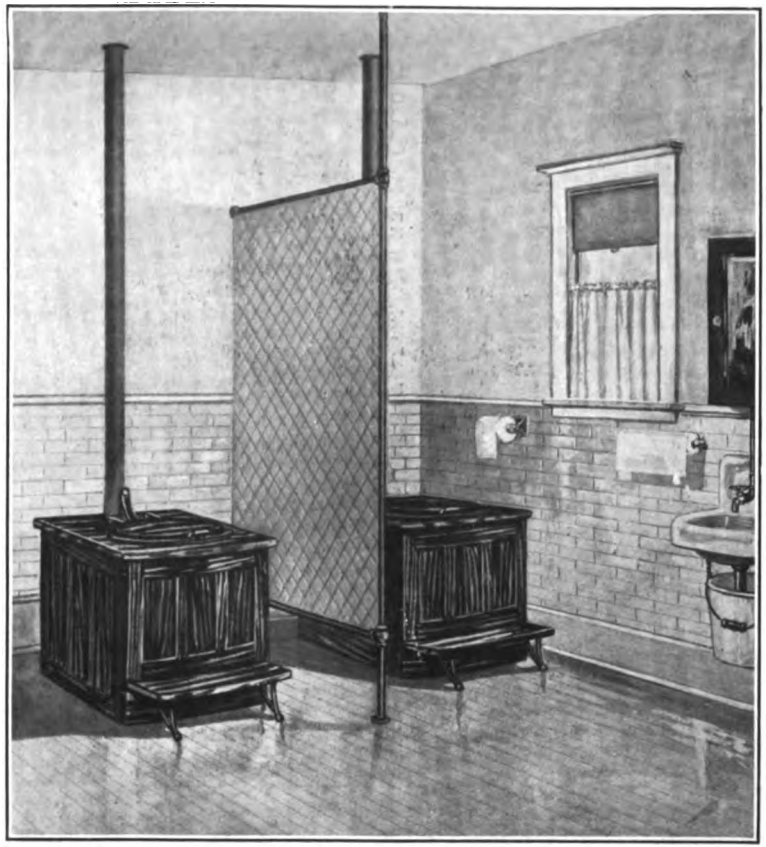

A RECENTLY PATENTED DEVICE FOR INDOOR TOILETS IN RURAL SCHOOLS OR RESIDENCES.

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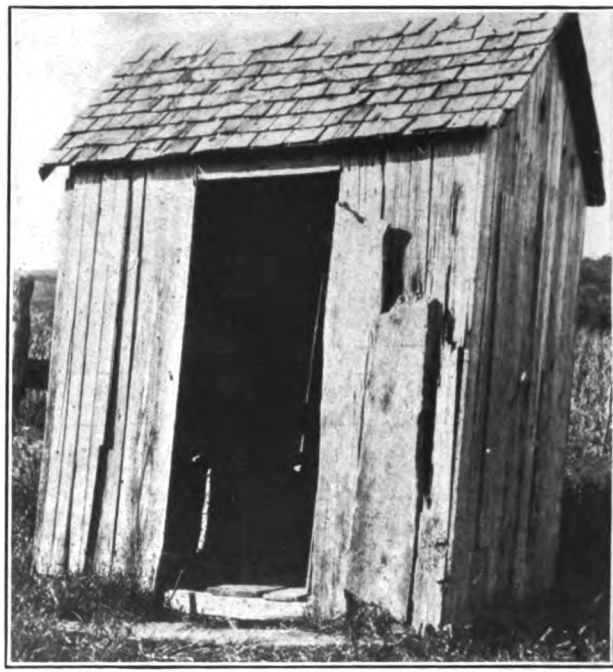

A SCHOOL PRIVY IN A WESTERN STATE.

The only provision for the young woman teacher and pupils of both sexes.

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DRINKING FOUNTAIN ATTACHED TO PUMP.

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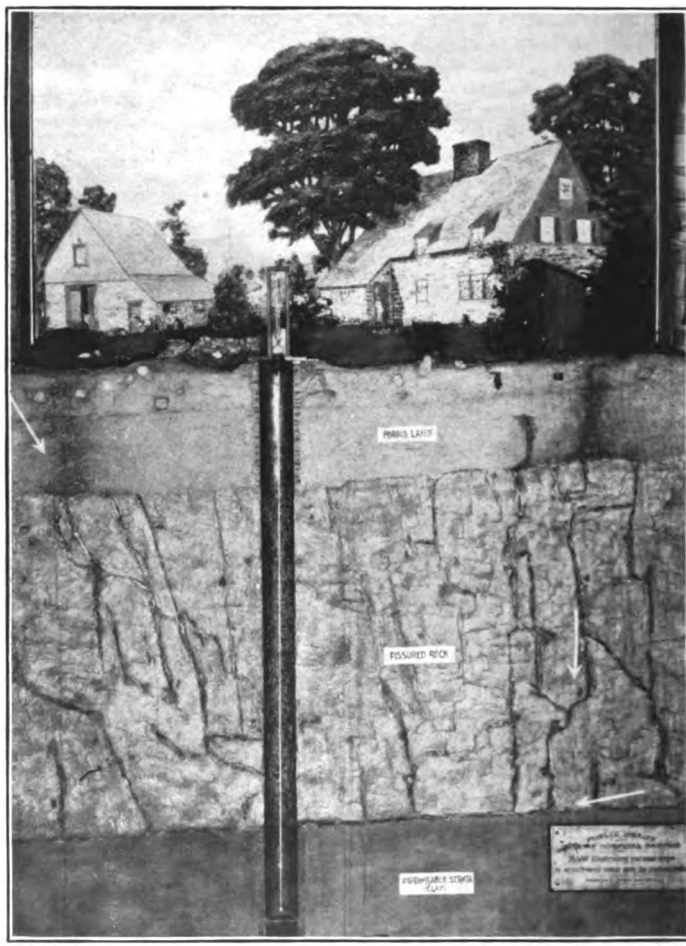

HOW WELL WATER MAY BE CONTAMINATED.

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BULLETIN OF THE BUREAU OF EDUCATION.

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1906.

†No. 1. Education bill of 1906 for England and Wales as it passed the House of Commons. Anna T. Smith.
†No. 2. German views of American education, with particular reference to industrial development. William N. Hailmann.
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1907.

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†No. 4. The elimination of pupils from school. Edward L. Thorndike.

1908.

†No. 1. On the training of persons to teach agriculture in the public schools. Liberty H. Bailey.
*No. 2. List of publications of the United States Bureau of Education, 1867–1907. 10 cts.
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*No. 7. State school systems: II. Legislation and judicial decisions relating to public education, Oct. 1, 1906, to Oct. 1, 1908. Edward C. Elliott. 30 cts.
*No. 8. Statistics of State universities and other institutions of higher education partially supported by the State, 1907–8. 5 cts.

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1910.

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†No. 3. List of publications of the United States Bureau of Education, 1867–1910.
*No. 4. The biological stations of Europe. Charles A. Kofoid. 50 cts.
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1911.

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*No. 18. Teachers' certificate issued under general State laws and regulations. Harlan Updegraff. 20 cts.
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1912.

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No. 23. Special collections in libraries in the United States. W. Dawson Johnston and Isadore G. Mudge.
†No. 24. Current educational topics, No. III.
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†No. 26. Bibliography of child study for the years 1910–1911.
No. 27. History of public-school education in Arkansas. Stephen B. Weeks.
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No. 32. Bibliography of exceptional children and their education. Arthur MacDonald.
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1913.

No. 1. Monthly record of current educational publications, January, 1913.
*No. 2. Training courses for rural teachers. A. C. Monahan and R. H. Wright. 5 cts.
*No. 3. The teaching of modern languages in the United States. Charles H. Handschin. 15 cts.
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*No. 22. Bibliography of industrial, vocational, and trade education. 10 cts.
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*No. 24. A comparison of public education in Germany and in the United States. Georg Kerschensteiner. 5 cts.
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*No. 46. Educational directory, 1913. 15 cts.
*No. 47. Teaching material in Government publications. F. K. Noyes. 10 cts.
*No. 48. School hygiene. W. Carson Ryan, jr. 15 cts.
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No. 54. Consular reports on industrial education in Germany.
No. 55. Legislation and judicial decisions relating to education, October 1, 1909, to October 1, 1912. James C. Boykin and William R. Hood.
†No. 56. Some suggestive features of the Swiss school system. William Knox Tate.
No. 57. Elementary education in England, with special reference to London, Liverpool, and Manchester. I. L. Kandel.
No. 58. Educational system of rural Denmark. Harold W. Foght.
No. 59. Bibliography of education for 1910–11.
No. 60. Statistics of State universities and other institutions of higher education partially supported by the State, 1912–13.

1914.

*No. 1. Monthly record of current educational publications, January, 1914. 5 cts.
No. 2. Compulsory school attendance.
No. 3. Monthly record of current educational publications, February, 1914.
No. 4. The school and the start in life. Meyer Bloomfield.

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No. 5. The folk high schools of Denmark. L. L. Friend.
No. 6. Kindergartens in the United States.
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*No. 10. Physical growth and school progress. B. T. Baldwin. 25 cts.
No. 11. Monthly record of current educational publications, May, 1914.
No. 12. Rural schoolhouses and grounds. F. B. Dresslar.
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No. 14. Vocational guidance.
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